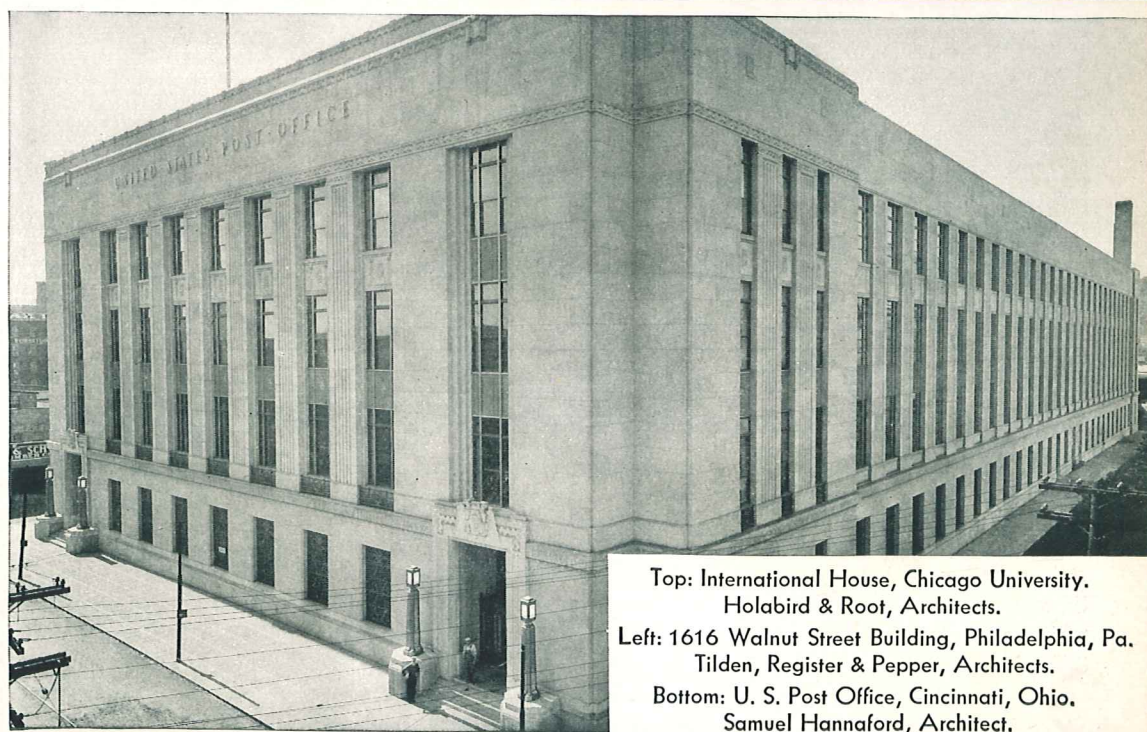




# *Fenestra*

BLUE BOOK OF STEEL WINDOWS



Top: International House, Chicago University.  
Holabird & Root, Architects.

Left: 1616 Walnut Street Building, Philadelphia, Pa.  
Tilden, Register & Pepper, Architects.

Bottom: U. S. Post Office, Cincinnati, Ohio.  
Samuel Hannaford, Architect.



Manufactured by

DETROIT STEEL PRODUCTS COMPANY

2250 East Grand Boulevard, DETROIT, MICH.

FACTORIES: DETROIT, MICH., and OAKLAND, CALIF.

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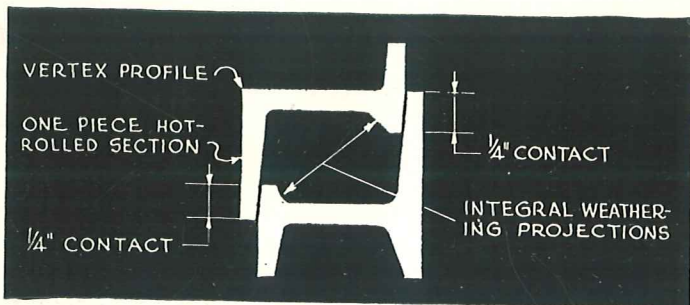
\*Stars indicate products referred to in this catalog. Additional information on any of the products listed will be sent on request.

## FENMARK—PROJECTED FENMARK—FENCRAFT—CUSTOM GENERAL WINDOW SPECIFICATIONS

These specifications apply particularly to the windows named and are to be used in connection with the individual information regarding these windows given on succeeding pages.

### 1—SECTIONS

Sections shall be solid, hot rolled, vertex profile steel, especially designed for the manufacture of casement windows.



Weathering projections shall be rolled INTEGRAL with the sections to provide overlapping, parallel surface contacts of not less than 1/4" at both outside and inside points of closure.

Movable sash shall make both outside and inside contacts against one-piece, hot rolled section at head, jambs and sill.

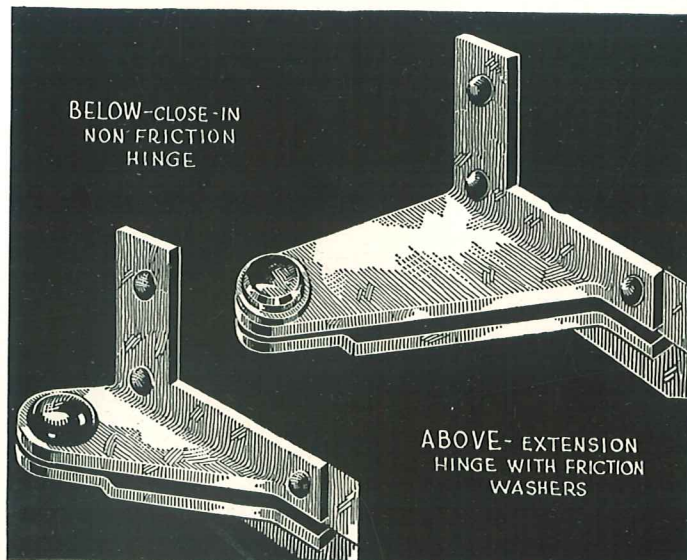
All sections shall be straightened by rerolling and shall be individually, electrically tested for straightness. Corners of all ventilators shall be electrically welded and ground smooth.

### 2—HINGES

Side Hung Ventilators shall be hung either on "Extension Hinges" or on "Close In" Hinges of especially de-

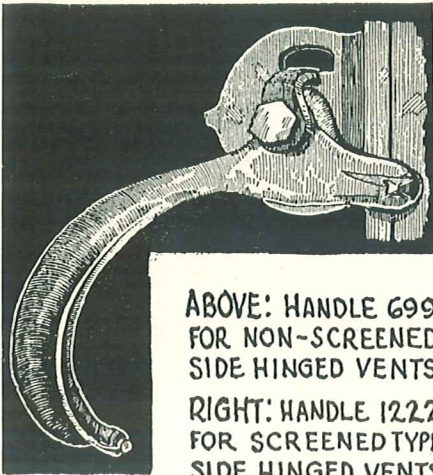
signed, vertex profile, solid, hot rolled steel. Hinge pins shall be solid bronze, accurately fitted into bronze bushings. Top or Bottom Hung Ventilators shall be hung on flat, 5-knuckle hinges.

(Both "Extension" and "Close In" Hinges may be equipped with friction washers, eliminating the need of sill adjusters, but these Friction Hinges are not recommended where the windows are to be screened, as they cannot be used with Fenestra Flat Screens. See Paragraphs 6 and 9. If screens are necessary with Friction Hinges, specify Swing, Rolling or Sliding Screens.)





## DETROIT STEEL PRODUCTS COMPANY

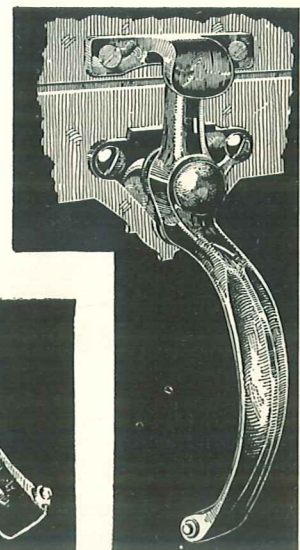


ABOVE: HANDLE 699  
FOR NON-SCREENED  
SIDE HINGED VENTS.  
RIGHT: HANDLE 1222  
FOR SCREENED TYPE  
SIDE HINGED VENTS.



ABOVE: HANDLE 1199  
FOR NON-SCREENED  
SIDE HINGED VENTS.

RIGHT: HANDLE 1422  
FOR PROJ.-IN VENTS

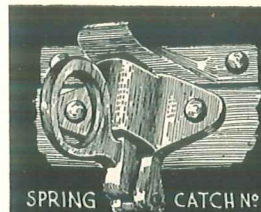


## 3—LOCKING HANDLES

All locking handles shall be specification solid bronze unless otherwise specified, and shall be of ornamental design and attached to ornamental handle brackets, either by ornamental screws or by friction clevises.

Handles on side hung, screened type ventilators shall be of hinged design to permit their being slipped through the screen escutcheons.

When windows contain ventilators beyond reach from the floor, they shall be equipped with hardware suitable for pole operation.



SPRING CATCH No. 739  
FOR BOTTOM HUNG OR PRO-  
JECTED OPEN IN VENTS



HANDLE NO. 914  
FOR TOP HUNG OR PROJEC-  
TED OPEN OUT VENTS

## 4—SLIDING SHOES

Projected Ventilators shall be supported on heavy spring steel side arms and shall be equipped with two bronze, sliding, friction shoes, the friction being maintained by compression springs of heavy, rust-proofed music wire, completely enclosed in bronze housings.

(Projected Ventilators used at the sills of windows, tilt in at the top while sliding up from the bottom. Projected Ventilators used above the sill, usually swing out

at the bottom while sliding down from the top, but may tilt in from the top if so specified.)

## 5—WINDOW CLEANING

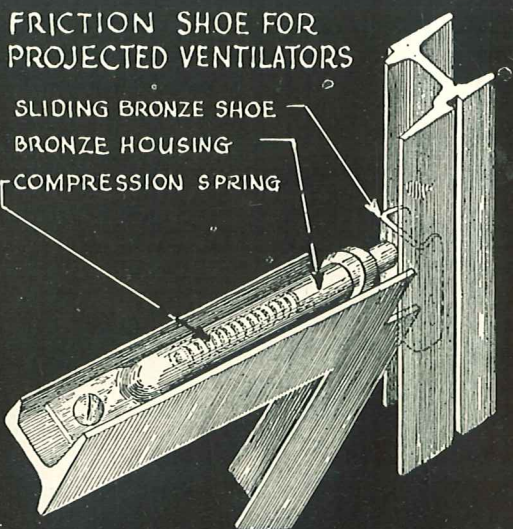
(Windows with projected ventilators or with single, side hung ventilators on "Extension Hinges" or with two adjacent side hung swing leaves on "Close-In" hinges may be cleaned on the outside from the inside. Windows with single side hung ventilators on "Close-In" hinges must be cleaned from the outside.)

## 6—ADJUSTERS

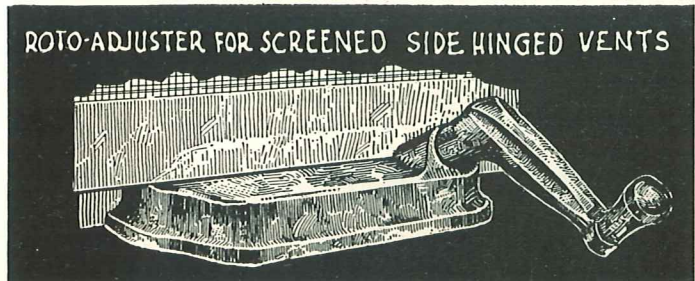
Side Hung Ventilators shall be: (a) Screened Type, equipped with non-friction hinges and Roto-Adjusters

FRICTION SHOE FOR  
PROJECTED VENTILATORS

SLIDING BRONZE SHOE  
BRONZE HOUSING  
COMPRESSION SPRING



## ROTO-ADJUSTER FOR SCREENED SIDE HINGED VENTS

SLIDING FRICTION ADJUSTER FOR  
NON-SCREENED SIDE HINGED VENTS





or, (b) Non-Screened Type equipped (standard) with friction hinges and no adjuster or (special) with non-friction hinges and Sliding Friction Adjusters.

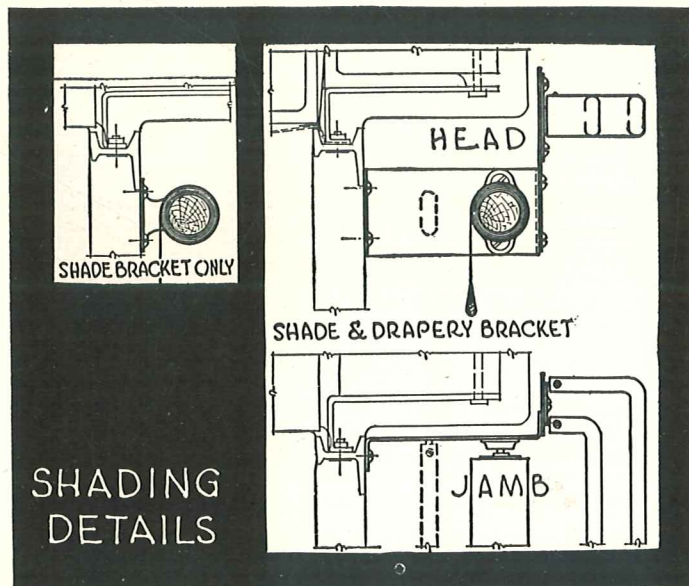
Top Hung Ventilators shall be: (a) Screened Type equipped with underscreen Notched Stay Adjusters or (b) Non-Screened Type equipped with Peg and Stay Adjusters.

(At extra cost Projected Out Ventilators may be equipped with special 15" underscreen, notched stay adjusters and Fenestra Flat Screens. See Section 9.)

#### 7—SHADING

All windows shall be drilled at both jambs near the head, for the attachment of shade brackets. Brackets shall be supplied by the shading contractor.

(Shade bracket clips accommodating any standard bracket can be supplied at extra cost.)

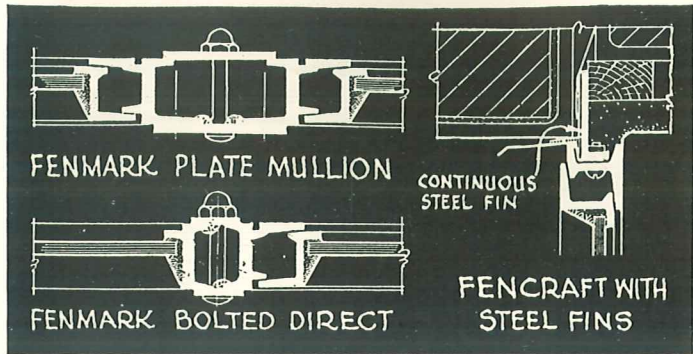


#### 8—MULLIONS—FINS

Mullions and Transom Bars shall be provided between adjacent windows where specified.

(In Fenmark or Projected Fenmark Windows, the mullions may be omitted where specified and narrow vertical lines may be secured by bolting the jambs of the windows together.)

(Fins may be used for anchorage on windows having equal leg frame section.)



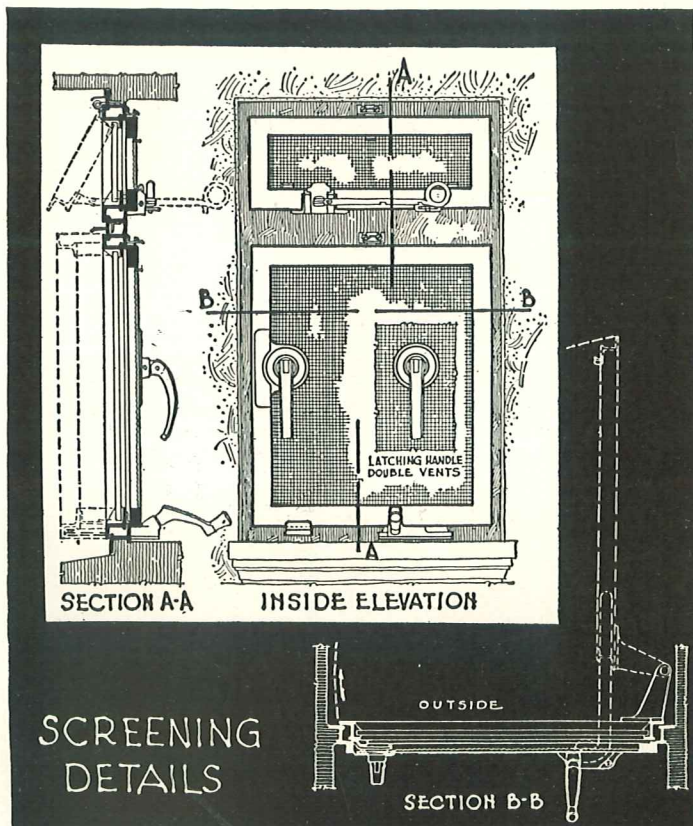
#### 9—SCREENING

(Fenestra Screened Type Windows with Fenestra Flat Screens are recommended for all Fenmark, Fenecraft and Custom Windows where screens are required. Flat screens may be used on Projected Fenmark windows. See Section 6.)

Screens for all Screen Type Open Out Ventilators shall lie flat against the inside of the window frame and shall permit complete operation of the ventilator, opening, closing and locking, without touching the screen.

Screens for all Open In Ventilators shall lie flat against the outside of the window frame.

All screens shall be easily attached or removed from the inside. Screen frames shall be steel, containing triangular reinforcement, extending continuously around the frame. Corners shall be butt welded. Screen cloth





shall be 16-mesh 32-gauge bronze wire. Steel frame shall be bonderized, then enameled two coats, one coat baked on. Finish coat shall be gray.

(Screens are available with bronze frames or with aluminum frames and aluminum wire cloth. Also with finer mesh where specified.)

(Non-screened types may be screened by the use of hinged, rolling or sliding screens so positioned as to clear the hardware.)

#### 10—PAINTING

All windows shall receive adequate shop painting to protect them during transportation to the building site.

(Provision should be made for the painting contractor to apply a field coat after erection and before glazing, uniformly applied to thoroughly cleaned surfaces. Final painting should be deferred until about three weeks after glazing to permit the putty to set.)

#### 11—MASTIC

Mastic shall be supplied by the window manufacturer for sealing at masonry sills and at vertical or horizontal connections between windows with UNEQUAL leg frame section; and for sealing the entire perimeter of all windows with EQUAL leg frame section.

#### 12—ERECTION

(Wherever possible, windows should be erected in prepared openings by the window manufacturer after all Mason work has been completed.)

#### 13—GLAZING

All windows shall be glazed on the outside with high grade steel window putty, neatly applied. Each light shall be bed puttied, secured by spring glazing clips furnished by the window manufacturer, and then face puttied.

(Outside putty glazing is recommended in all cases, particularly for Fenmark and Projected Fenmark Windows. Glazing beads can be furnished at extra cost where specified, and, when used, inside glazing is advisable. Plate glass is recommended.)

#### 14—ALUMINUM OR BRONZE WINDOWS

(Fenmark, Projected Fenmark, Fencraft or Custom Built Windows may be secured in extruded aluminum sections equipped with white metal hardware and aluminum framed screens or in bronze sections equipped with bronze hardware and bronze framed screens. Consult the nearest Fenestra Representative.)

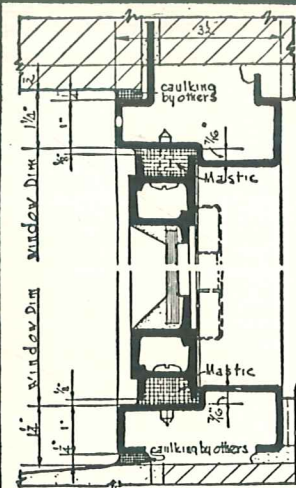
#### 15—UNDERWRITERS' LABEL WINDOWS

(Fenmark, Projected Fenmark, Fencraft and Custom Built Windows can be supplied bearing the Underwriters' Label. Glass sizes are limited to a maximum of 48" in either dimension and to an exposed glass area of 350 sq. in. In Fenmark and Projected Fenmark Types the ventilators may open in or open out. In Fencraft Types the ventilators must open out.)

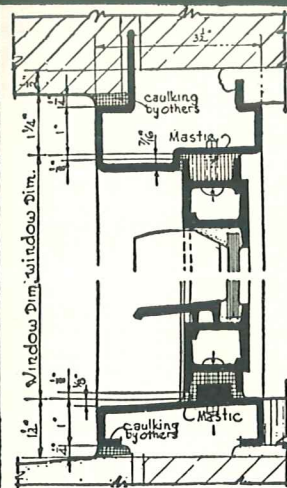
(In all windows, quarter inch glass must be used. In all other essentials, the labeled windows conform to the standard products.)

#### 16—METAL SUBFRAMES

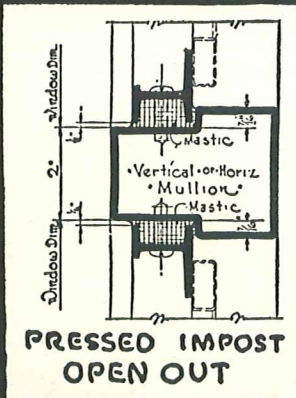
(Subframes of solid rolled steel or of 12-gauge pressed steel are available for use with Fenmark, Projected Fenmark, Fencraft or Custom Built Windows, where specified. Consult nearest Fenestra Representative.)



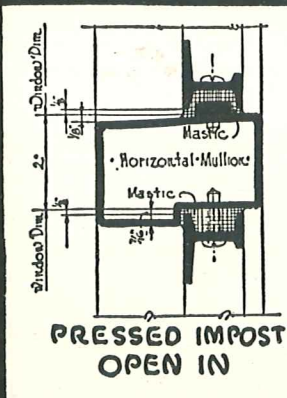
**PRESSED METAL  
OPEN OUT**



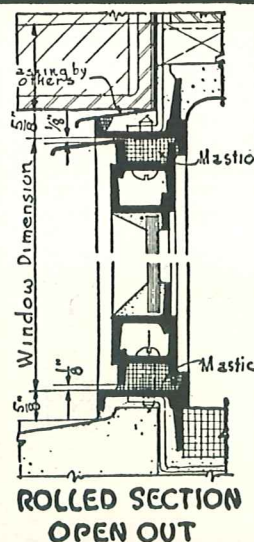
**PRESSED METAL  
OPEN IN**



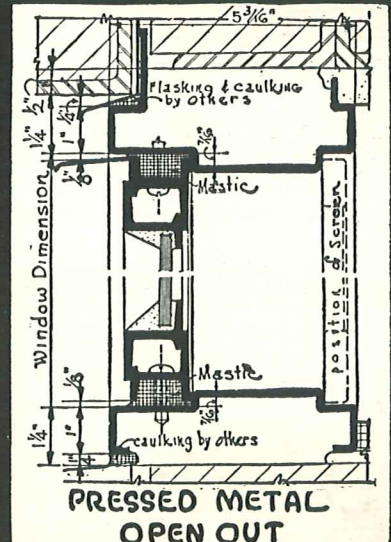
**PRESSED IMPOST  
OPEN OUT**



**PRESSED IMPOST  
OPEN IN**



**ROLLED SECTION  
OPEN OUT**



**PRESSED METAL  
OPEN OUT**



# FENMARK WINDOWS

(All General Specifications on Pages 1, 2, 3 and 4 apply)

Designed for use in Office Buildings, Hospitals and all types of monumental, educational and public buildings.

Vertical lines especially adapted to modern stepped back designs. Windows lend themselves to combination with metal stools and fully or semi-concealed radiation.

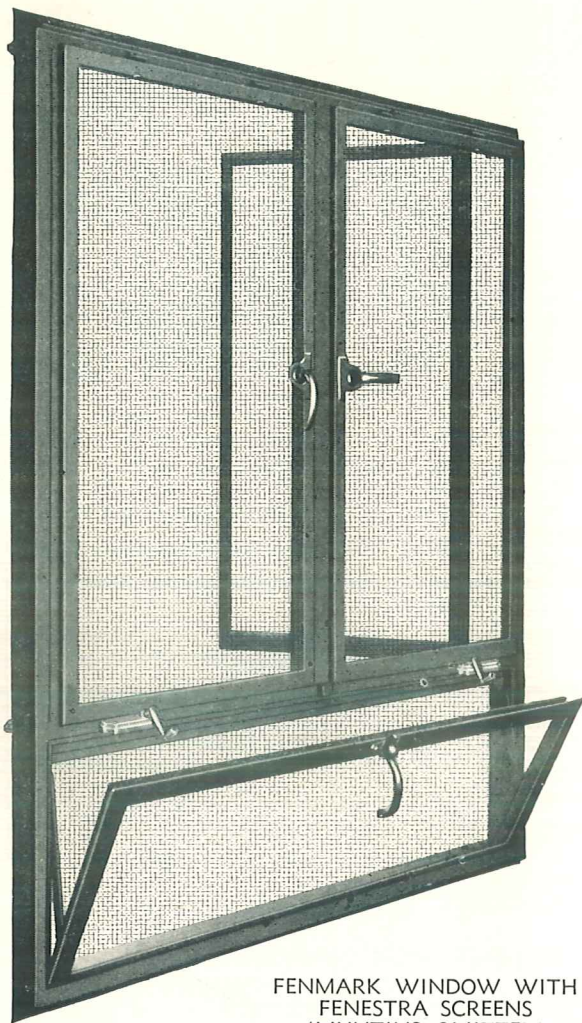
Supplied in both Screened and Nonscreened Types.

Frame sections are 1 1/2" deep from front to back with unequal legs. Frame corners are mortised and tenoned and air hammer riveted. Ventilator sections and muntins are 1 1/4" deep from front to back. Vent corners are electrically butt welded. Muntins often are omitted to permit the use of large single panes of plate glass.

This window features a Projected-In ventilator at the sill which serves as a wind guard, deflecting drafts upward.

Transom Types may be either Projected In or Projected Out. Transoms and sill ventilators may be combined with side hung types by means of transom bars to provide windows of almost any height or width and almost any degree of ventilation up to 100%.

Specification, solid bronze hardware is standard. (See typical designs on Page 2.)



FENMARK WINDOW WITH  
FENESTRA SCREENS  
(MUNTINS OMITTED)

## FENMARK WINDOWS ~ TYPES & SIZES

1'-3 1/2"						
HEIGHTS						
4'-6"						
5'-0"						
5'-6"						
6'-0"						
WIDTHS						
6'-6"						
7'-0"						
7'-6"						
8'-0"						
8'-6"						
1'-0"	2'-6" 3'-0"	1'-6"	2'-6" 3'-0"	2'-6" 3'-0"	2'-6" 3'-0"	5'-0" 5'-6"
1'-6"	3'-6" 4'-0"	2'-0"	3'-6" 4'-0"	3'-6" 4'-0"	3'-6" 4'-0"	6'-0" 6'-6"
2'-0"	4'-6"		4'-6"	4'-6"	4'-6" 5'-0"	7'-0"



# PROJECTED FENMARK WINDOWS

(All General Specifications on Pages 1, 2, 3 and 4 apply except Section 2.)

Designed for use in monumental, educational and public buildings, particularly where weather protection is desired while the ventilators are open. Projected Out Ventilators in an open position form a canopy above the opening. Projected In Ventilators shed water toward the outside.

Frame Sections are 1 1/2" deep from front to back with unequal legs. Frame corners are mortised and tenoned and air hammer riveted. Ventilator Sections and Muntins are 1 1/4" deep from front to back. Vent corners are electrically butt welded.

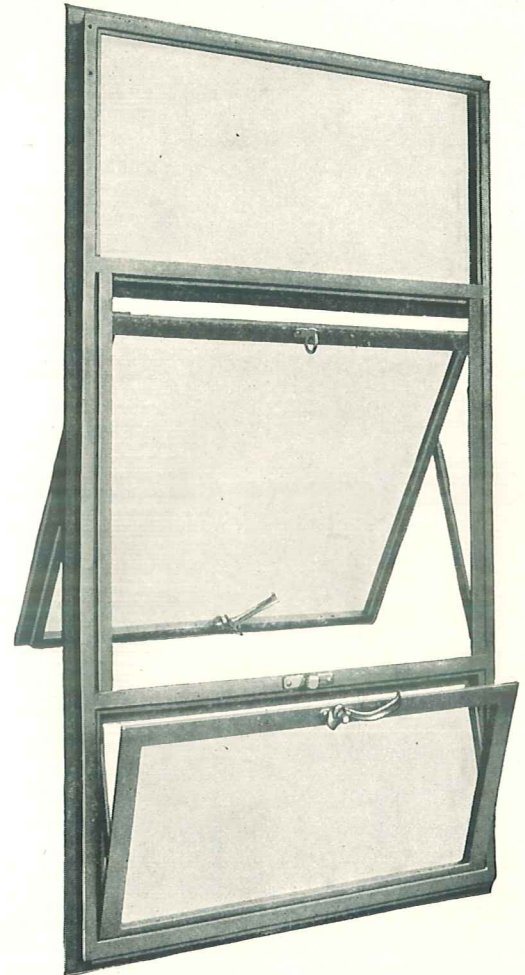
Projected Fenmark Windows are similar in construction to Fenmark Types except that all ventilators are of the "projected" type opening in or out as specified.

For operation of ventilators note particularly Section 4 of the General Specifications.

Where screens are desired with Projected Out Ventilators, Fenestra Flat Inside Screens and a 15" Underscreen Stay Adjuster are available at slight extra cost. (See Sections 6 and 9, General Specifications.)

Ventilators usually are arranged so that all glass may be cleaned on both sides from inside the room.

Specification, solid bronze hardware is standard. (See typical designs on Page 2.)



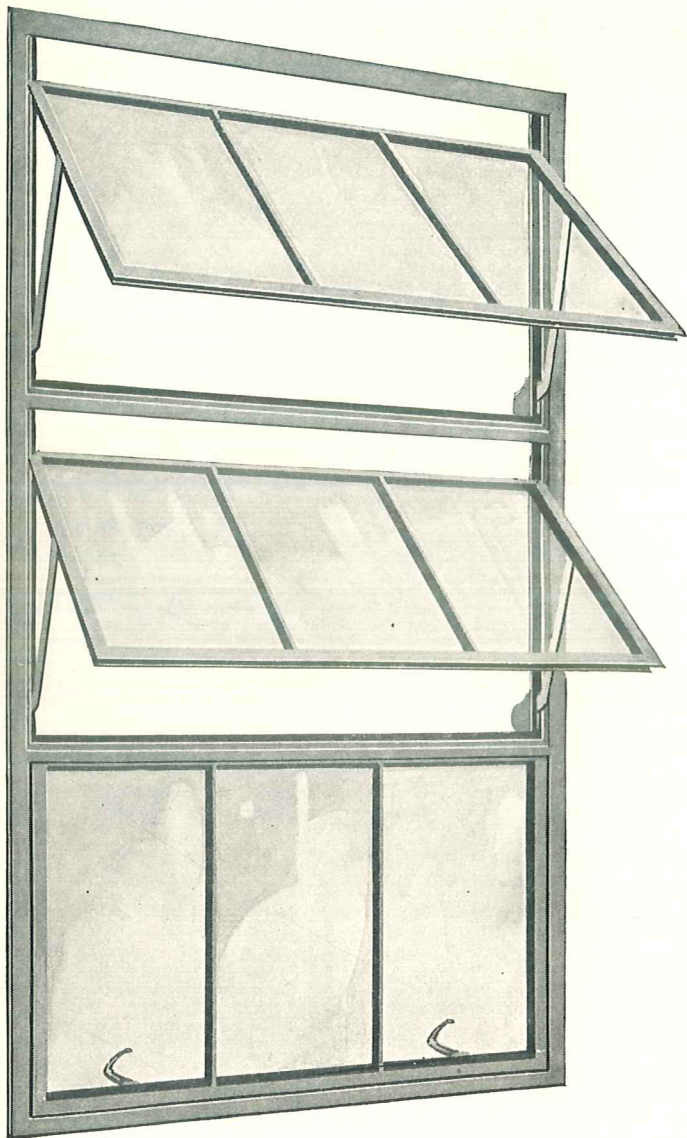
PROJECTED FENMARK WINDOW WITH  
PROJECTED-OUT AND PROJECTED-IN  
VENTILATORS

## PROJECTED FENMARK TYPES & SIZES

1'-3 1/2"												
HEIGHTS												
4'-6"												
5'-0"												
5'-6"												
6'-0"												
6'-6"												
7'-0"												
7'-6"												
8'-0"												
8'-6"												
WIDTHS	1'-0"	2'-6"	3'-6"	4'-6"	2'-6"	3'-6"	4'-6"	5'-0"	5'-6"	2'-6"	3'-6"	4'-6"
	1'-6"	3'-0"	4'-0"		3'-0"	4'-0"		6'-0"	6'-6"	3'-0"	4'-0"	
	2'-0"							7'-0"				



## DALMO-FENMARK WINDOWS



EXTERIOR OF DALMO-FENMARK WINDOW WITH LOWER VENTILATOR CLOSED

(All General Specifications on Pages 1, 2, 3 and 4 apply except Section 2.)

Standard Projected Fenmark Windows with Dalmo operating mechanism designed for 100% ventilation in schools, hospitals, and office type structures where unusual speed, ease and flexibility in opening and closing are essential.

All vents open simultaneously by opening the sill ventilator. The latter may then be closed leaving upper vents open. By reopening the sill vent all vents are automatically reconnected and may be closed by closing the sill vent. No clutch or lever mechanism necessary.

No pressed metal, built-up or factory sections used anywhere. See Section 1 General Specifications.

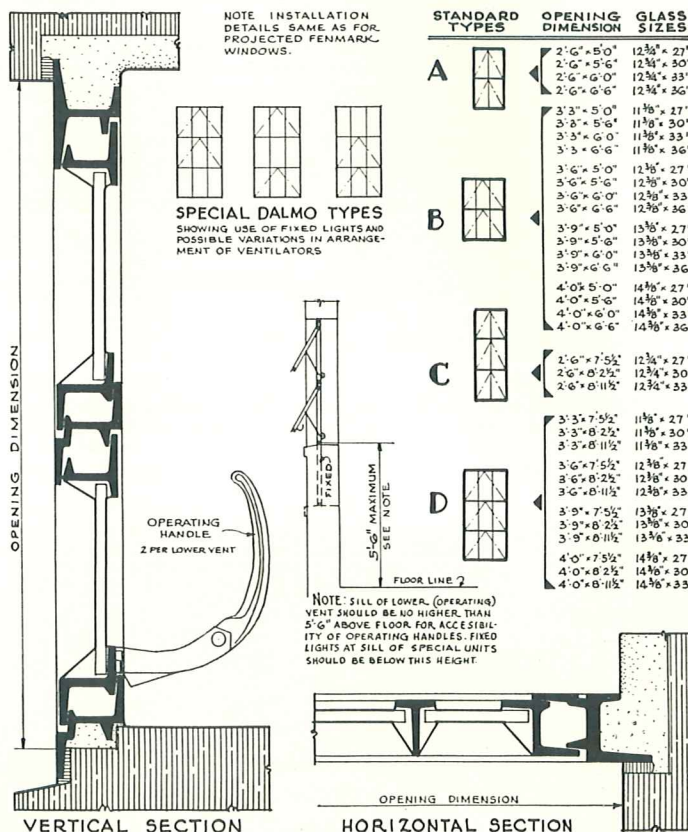
The Dalmo Fenmark is the only window on the market in which ventilators may be operated in unison by means of a mechanism entirely concealed.

Spring steel side arms supporting the upper vents are carried through the frame sections and pivoted into solid steel welded, extension brackets which protrude only  $3\frac{1}{16}$ " inside the window and are concealed by steel housings. Side arms on sill vents are pivoted to the frame.

Ventilators are hung on U-shaped, vertically sliding shoes and are connected by concealed connecting bars. A solid bronze trip mechanism is located on each jamb bar to automatically release the lower ventilator after all vents have been opened.

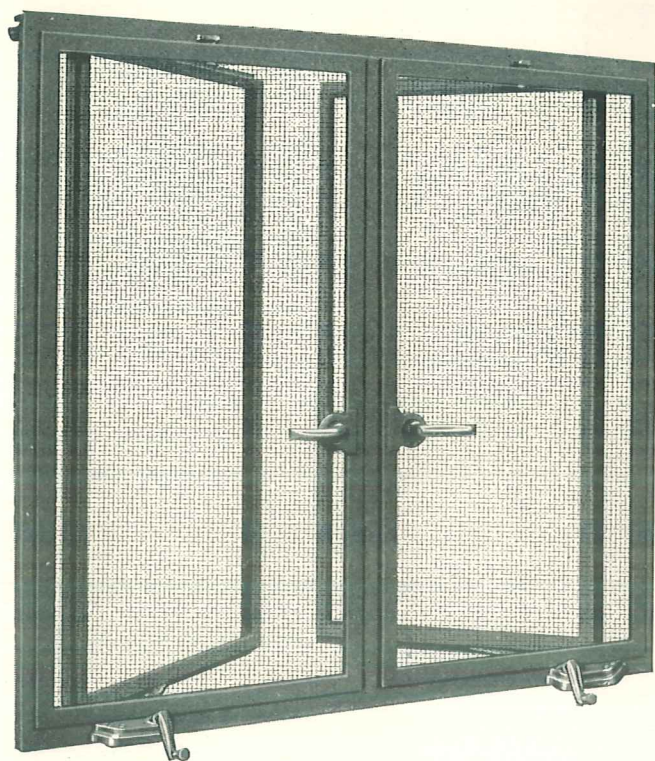
All ventilators are locked in a closed position by two bronze locking handles at the sill of the lower vent.

Each vent may be shaded on its under side to act as an awning. Vents are punched and shade brackets and cord rollers are included.





# FENESTRA FENCRAFT CASEMENTS



FENCRAFT SCREEN TYPE CASEMENT WITH FENESTRA  
FLAT SCREENS

(All General Specifications on Pages 1, 2, 3 and 4  
apply except Section 4.)

Designed for use in fine residences, clubs, apartments, theaters, churches, hospitals, dormitories, hotels, fraternity, school and university buildings and all structures where high quality casement windows are applicable.

Supplied in both Screened and Nonscreened Types.

(It is important to determine at the outset whether  
Screened or Nonscreened Types are to be used.)

Frame and ventilator sections are 1 1/4" deep from front to back. Frame sections have equal legs. Frame and ventilator corners are mitered, electrically butt welded and ground to a smooth finish.

(Frame sections can be equipped with continuous steel  
fins for anchorage if required.)

Interior muntin bars may be omitted where desired, to accommodate large panes of plate glass or leaded glass panels, or the vertical muntins only may be omitted to

provide wide horizontal glass lights used in Spanish and Modern architecture.

Standard side hung ventilators are designed to open out, but certain types may be made to open in, where specified. See details on Page 12.

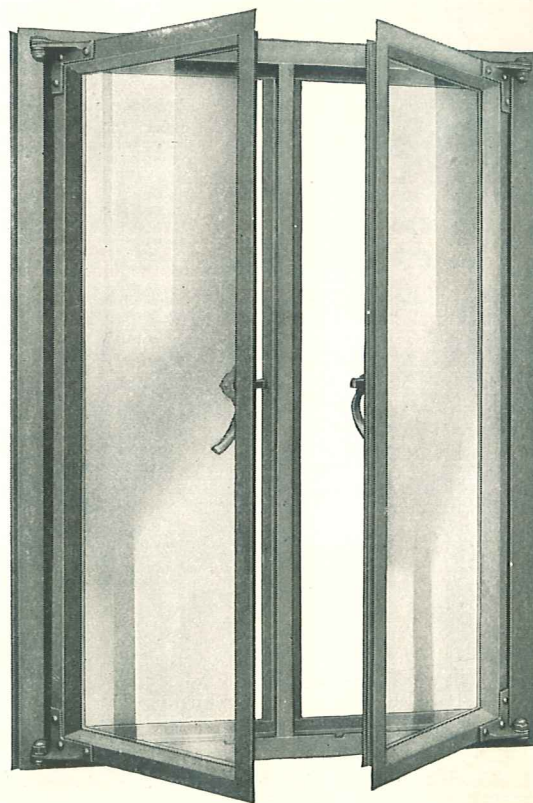
(For operation of side hung, open out vents see Section 6, General Specifications.)

Transom Types, either top hinged to open out or bottom hinged to open in, are available; also bottom hinged, open in, sill ventilators. Transoms and sill ventilators may be combined with side hung units by means of transom bars to provide windows of almost any height and almost any degree of ventilation up to 100%.

Specification solid bronze hardware is standard. (See typical designs on Page 3.)

Standard Fencraft Open Out Types are shown on Page 10.

Standard Open In Types are shown on Page 12.



EXTERIOR OF FENCRAFT NON-SCREENED  
TYPE CASEMENT



**FIXED UNITS USED WITH DOORS**  
 SIZES SHOWN ON THESE TYPES ARE WINDOW DIMEN'S.  
 SEE NOTE BELOW.

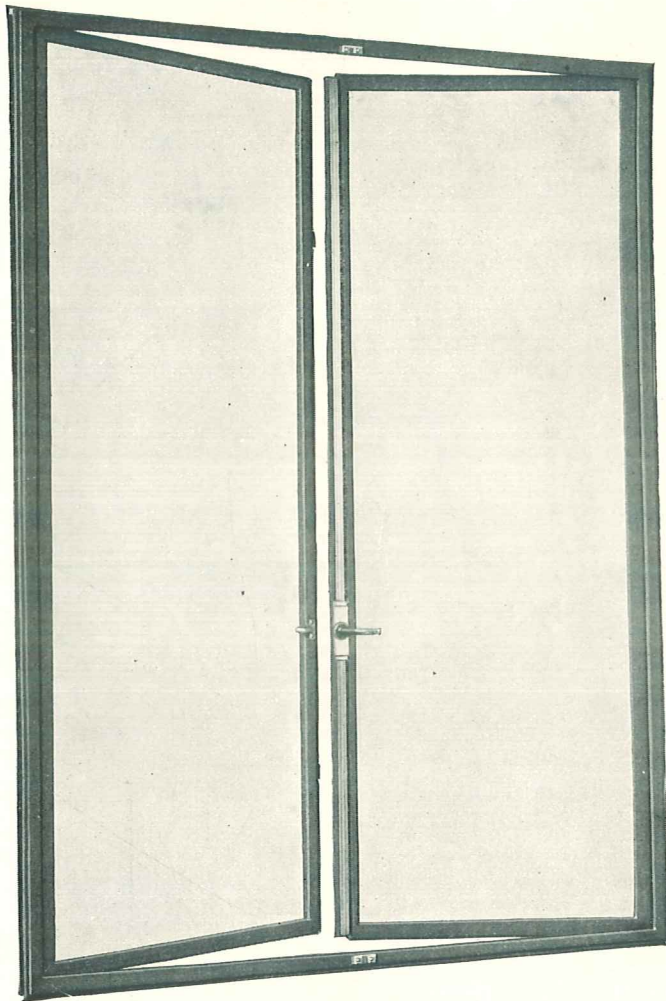
**NOTES**  
 SIZES GIVEN ARE OPENING DIMENSIONS (EXCEPT AS NOTED ABOVE) ALLOWING INSTALLATION CLEARANCE OVER ACTUAL WINDOWS.  
 ANY TYPE FURNISHED WITH MUNTINS OMITTED WHEN SO SPECIFIED.  
 R/L INDICATES CASEMENT MAY BE RIGHT OR LEFT HAND, VIEWED FROM OUTSIDE. A RIGHT HAND CASEMENT IS HINGED AT RIGHT & A LEFT HAND C'SMT. HINGED AT LEFT.  
 VC = VENT IN CENTER  
 CH = CIRCULAR HEAD  
 TH = TO HUNG VENT  
 T = UNIT WITH SIGHTLINE TRANSOM BAR (SHOWN HEAVY)

GLASS SIZES	
LETTER	SIZE
A	8" x 11"
C	8" x 11 7/8"
D	8 7/8" x 11"
E	8 7/8" x 11 7/8"
F	9 1/8" x 11"
G	9 1/8" x 11 7/8"
H	10" x 11"
J	10" x 11 7/8"
K	11 5/8" x 11"
L	10" x 10 7/8"
M	8" x 10 7/8"
N	10 1/2" x 11"
P	11 1/2" x 11"

LIGHTS NOT LETTERED ARE 8" x 11" (A) EXCEPT IN CH UNITS WHICH ARE CUT TO TEMPLATES.



# FENESTRA CUSTOM CASEMENTS



CUSTOM CASEMENT, FOLDER TYPE, WITH BRONZE CREMONE BOLT

(All General Specifications on Pages 1, 2, 3 and 4 apply except Section 4.)

A heavy, solid section, steel window designed for use in monumental, public and educational buildings and fine residences, clubs, theaters and hospitals. Especially desirable where large sized units are required as the unusual weight of the sections permits single units, 100% ventilated, up to 3' wide by 8' high, and double vented, folder type units (without meeting rail) up to 5' wide by 8' high.

Frame and ventilator sections are  $1\frac{9}{16}$ " deep from front to back. Frame sections have equal legs. Frame and vent corners are mitered and electrically butt welded.

(Frame sections can be equipped with continuous steel fins for anchorage if specified.)

(Large, single panes of plate glass usually are used, one pane to each swing leaf, but muntins can be supplied where specified.)

Made in both Screened and Nonscreened Types but in Screened Types the vertical meeting rail always is included. (Folder Types must be screened by sliding, rolling or hinged screens.)

Side hung ventilators usually are designed to open out but may be designed to open in if so specified.

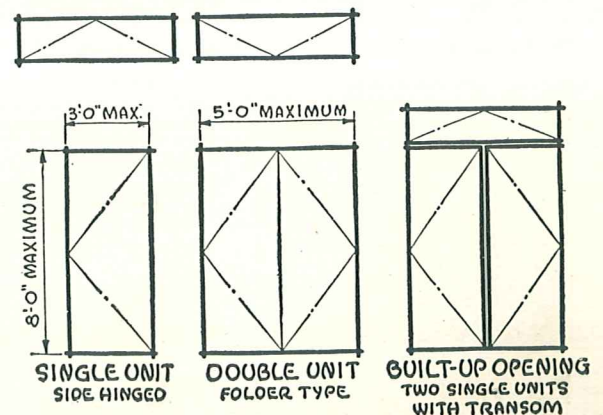
Transom Types, projected, top hinged to open out or bottom hinged to open in, are available—also bottom hinged, open-in sill ventilators. Transoms and sill vents may be combined with side hung units by means of transom bars to provide windows of almost any height or width and almost any degree of ventilation up to 100%.

Specification solid bronze hardware with Coinage finish is always used unless otherwise specified. (See Page 2, General Specifications.)

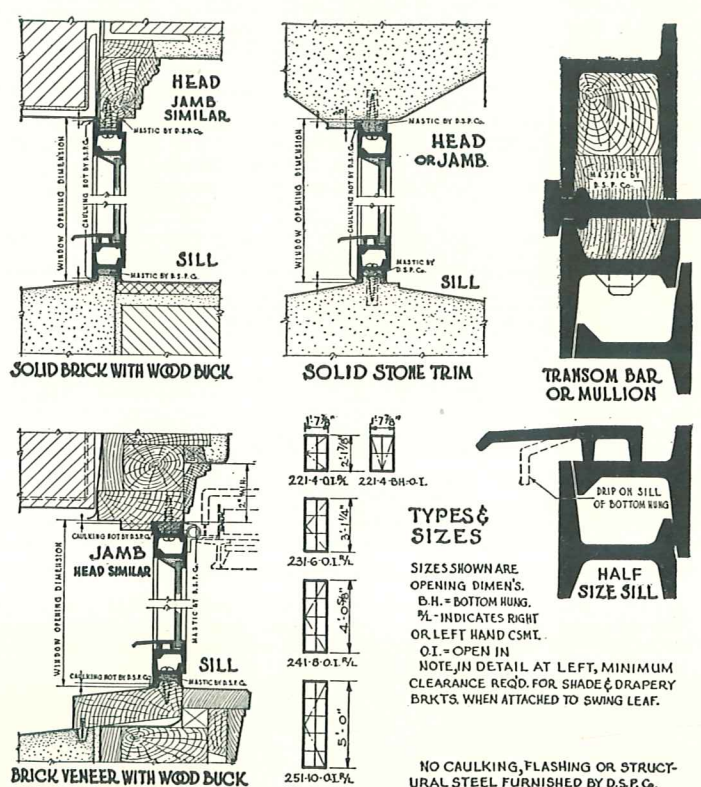
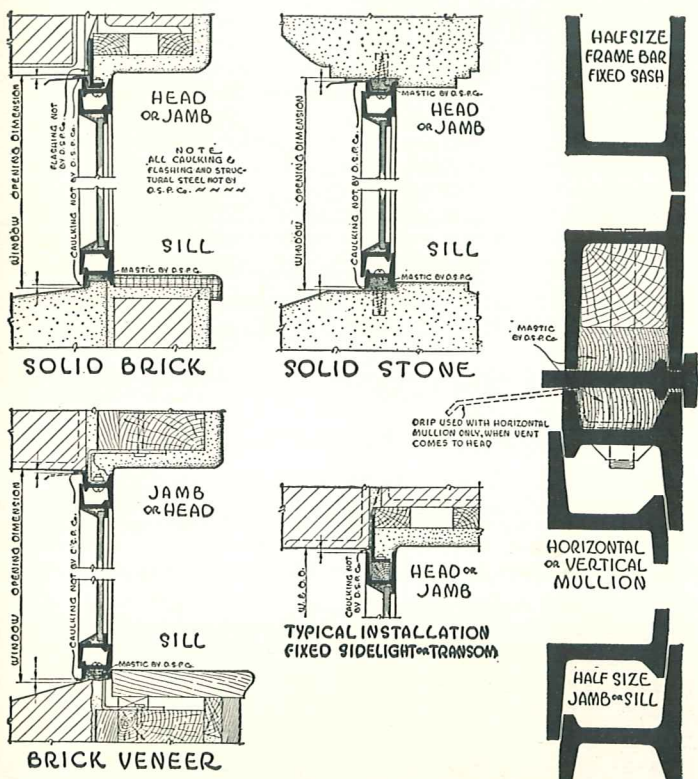
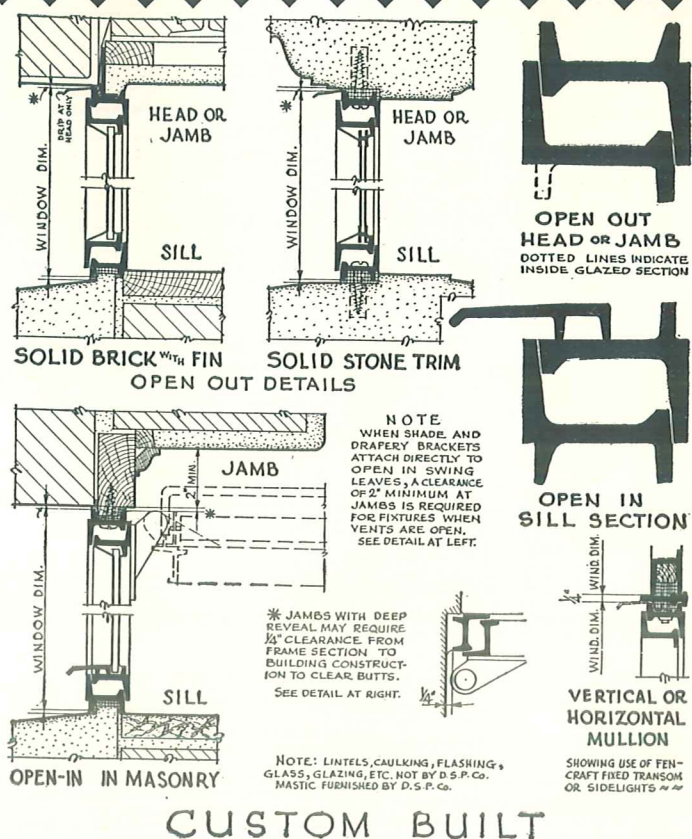
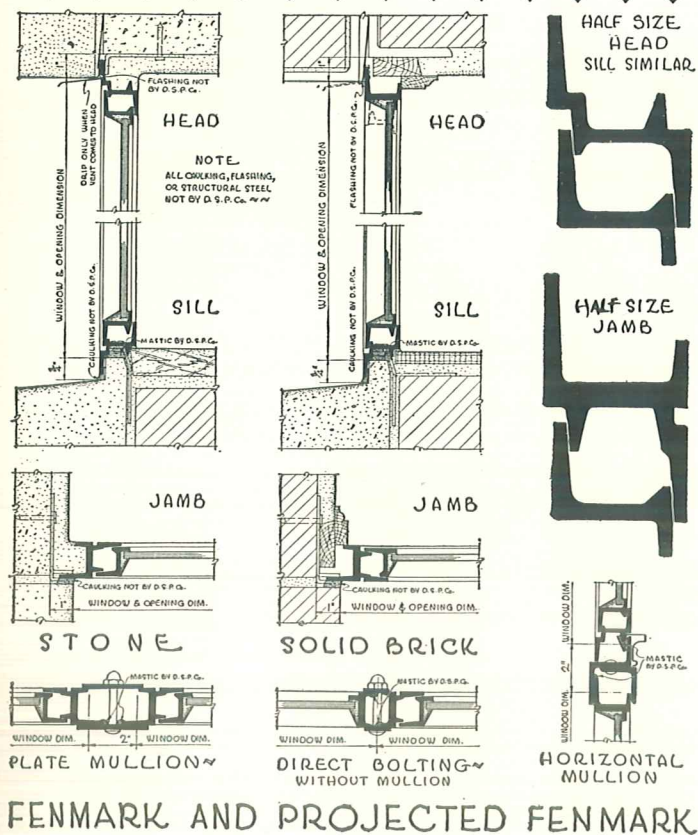
(For single ventilators over 5' high and for single units with vertical centers more than 6' 3" above the floor, Double Locking Devices are recommended.)

Double Ventilated Units (Folder Type) are equipped with surface type cremone bolt attached to the active leaf and a solid bronze finger pull attached to the opposite leaf.

## CUSTOM & TYPICAL TYPES





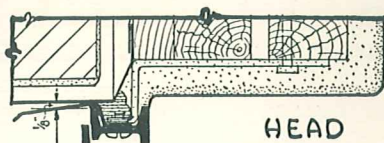


FENCRAFT ≈ OPEN OUT

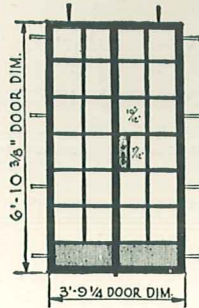
FENCRAFT  $\approx$  OPEN IN



## STANDARD ~1 1/4" SECTION



HEAD

STANDARD DOOR  
STOCK SIZE

STANDARD DOORS TO OPEN OUT ARE CARRIED IN STOCK IN 3'-9 1/4" x 6'-10 3/8" OPNG SIZE. OTHER SIZES NOT TO EXCEED 5'-0" x 7'-6" AND OPEN IN TYPE FURNISHED ON ORDER. ALL TYPES OUTSIDE PUTTY GLAZED.

## STANDARD EQUIPMENT

ACTIVE LEAF - LOCK WITH THUMB TURN ON INSIDE ONLY AND WITH HANDLE CONTROLLING CONCEALED CREMONE BOLT.

INACTIVE LEAF - EXPOSED BRONZE TOP & BOTTOM SHOT BOLTS.

BOTH LEAVES - FRICTION HINGES.

12 STRAP ANCHOR CLIPS.

## SPECIAL EQUIPMENT AVAILABLE

CYLINDER LOCK WITH CYLINDERS ON EITHER OR BOTH SIDES; DUMMY LOCK PANEL ON INACTIVE LEAF.

BRONZE THRESHOLD. (AUXILIARY)

SCREEN DOOR NOT BY D.S.P.CO.. 2 1/2" MIN. CLEARANCE IS REQUIRED WITH OR WITHOUT USE OF THRESHOLD

2 1/2"

SILL

VERTICAL SECTION



STD. DESIGN



OTHER RECOMMENDED DESIGNS

6'-0" MAX.



6'-0" MAX.

CUSTOM DOORS  
SEE NOTE REGARDING MUNTINS BELOW

MUNTINS MAY NOT BE ENTIRELY ELIMINATED. LOCK PANEL MUST BE FRAMED BY MUNTINS (AS IN RECOMMENDED DESIGNS - CUSTOM DOORS) TO PREVENT WEAKENING GLASS BY NOTCHING.

CUSTOM DOORS TO OPEN OUT OR IN ARE BUILT TO ORDER OF DESIGN & SIZE DESIRED NOT TO EXCEED 3'-0" x 8'-0" FOR SINGLE DOOR OR 6'-0" x 8'-0" FOR DOUBLE. THEY MAY BE INSIDE OR OUTSIDE GLAZED, WITH PUTTY OR WITH GLAZING BEADS.

## STANDARD EQUIPMENT

ACTIVE LEAF - LOCK WITH THUMB TURN ON INSIDE ONLY AND WITH HANDLE CONTROLLING CONCEALED CREMONE BOLT.

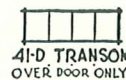
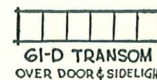
INACTIVE LEAF - EXPOSED BRONZE TOP & BOTTOM SHOT BOLTS.

BOTH LEAVES - 3 1/2" 5 KNUCKLE HINGES. (STEEL)

## SPECIAL EQUIPMENT AVAILABLE

AUXILIARY OR INTEGRAL BRONZE THRESHOLD. BRONZE HINGES.

CYLINDER LOCK WITH CYLINDERS ONE OR BOTH SIDES; DUMMY LOCK PANEL ON INACTIVE LEAF.

17-D  
SIDELIGHT41-D TRANSOM  
OVER DOOR ONLY61-D TRANSOM  
OVER DOOR & SIDELIGHTCH-4-D TRANSOM  
OVER DOOR ONLYCH-6-D TRANSOM  
OVER DOOR & SIDELIGHT

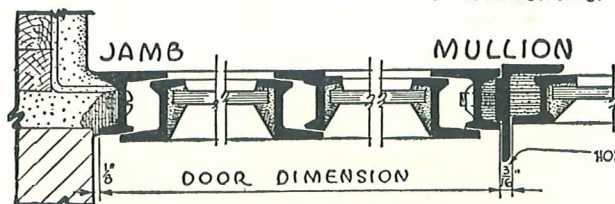
## SIDELIGHTS &amp; TRANSOMS

FENWROUGHT	TYPE	WIDTH	HEIGHT
	41-D	3'-9 1/4"	1'-1 1/16"
	61-D	5'-11 3/4"	1'-1 1/16"
	17-D	1'-1 1/16"	6'-10 3/8"
	CH-4-D	3'-9 1/4"	2'-0 3/4"
	CH-6-D	5'-11 3/4"	3'-2"

FENCRAFT	TYPE	WIDTH	HEIGHT
	41-D	3'-9 1/4"	1'-2 7/8"
	61-D	5'-11 7/8"	1'-2 7/8"
	17-D	1'-1 1/8"	6'-10 3/8"
	CH-4-D	3'-9 1/4"	2'-0 1/2"
	CH-6-D	5'-11 7/8"	3'-1 1/16"

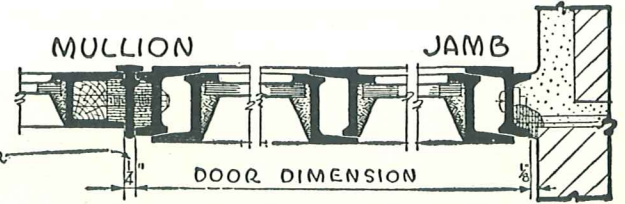
SIZES ARE WINDOW DIMS.

NOTE: TYPES AND SIZES SHOWN ABOVE AND AT LEFT ARE FOR STANDARD FIXED UNITS USED IN CONNECTION WITH STANDARD 1 1/4" SECTION DOORS. DESIGN AND SIZES OF SIDELIGHTS AND TRANSOMS FOR CUSTOM DOORS ARE DETERMINED BY EACH DOOR.



HORIZONTAL SECTION

SHOWING DOOR COMBINED WITH FENWROUGHT SIDELIGHT



HORIZONTAL SECTION

SHOWING DOOR COMBINED WITH FENCRAFT SIDELIGHT

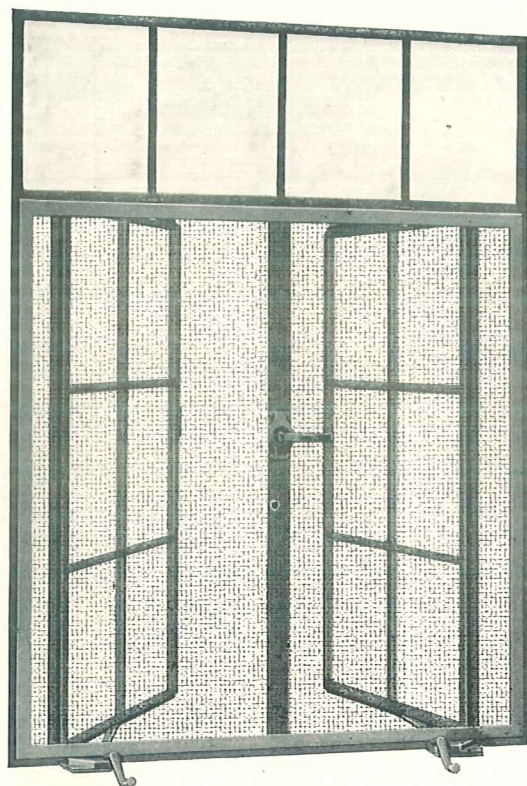


# FENESTRA FENWROUGHT CASEMENTS

## SCREENED FENWROUGHT CASEMENTS

Solid, rolled steel sections, 1" deep. Corners mitered and electrically butt-welded. Continuous, two-point, flat contact and double baffle weathering.

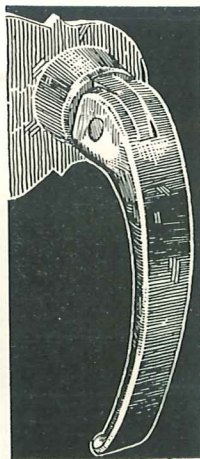
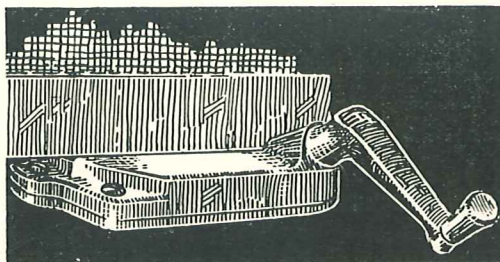
Swing leaves hinged at the top or at the side to open out.



Fenwrought Casement Complete with Fenestra Screen

Hinges are of solid rolled steel with solid bronze pins and bronze bushings. "Cleaning" hinges provide about 4½" opening at the jambs for cleaning glass from inside the room. Handle brackets are of solid rolled steel or steel plate solidly welded to the casement frame.

Handles are solid bronze or bronze finish, operating through the screen. Side hung leaves have Roto-Adjusters at the sill, operating under the screen without touching it. Adjuster handles are bronze or bronze finished as specified. Transoms have bronze, notched stay adjusters operating through the screens.



Installation is made easier by use of Fenestra Wood Surrounds supplied as specified for attachment to casements in a bed of mastic before erection in the opening.

One dip coat of gray lead and oil paint is applied before shipment. Glass sizes are shown on Page 15. We recommend ⅛" or ⅜" plate set in bed putty and held by spring glazing clips supplied without extra cost. Only steel window putty should be used.

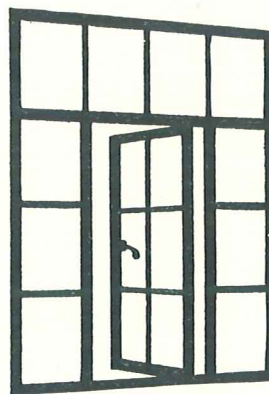
Frames are drilled at jambs near the head for attachment of standard shade and drapery brackets.

Fenestra Flat Screens with cold rolled and rust-proofed steel frames and 16 mesh oxidized bronze wire cloth, fit inside the casement and are held by clips. Easily removed (from inside only). Painted two coats of gray enamel, the first coat baked on. Rewireable.

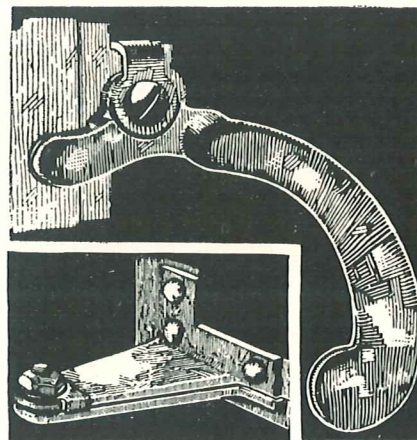
Tiltin Windows, one-light high, opening in at the top are supplied in types and sizes suitable for attachment to the sills of Fenwrought types but may be used individually if desired. They act as baffles at the sill deflecting air currents upward. Can be left open even in rainy weather. Screened on the outside if specified.

## STANDARD FENWROUGHT CASEMENTS

Standard Fenwrought Casements are exactly like Screened Fenwrought types in all respects except hinges, hardware and screens. Side hung leaves have heavy, cleaning friction hinges with oil-impregnated bronze bushing washers, bronze studs and nuts. By



Standard Type



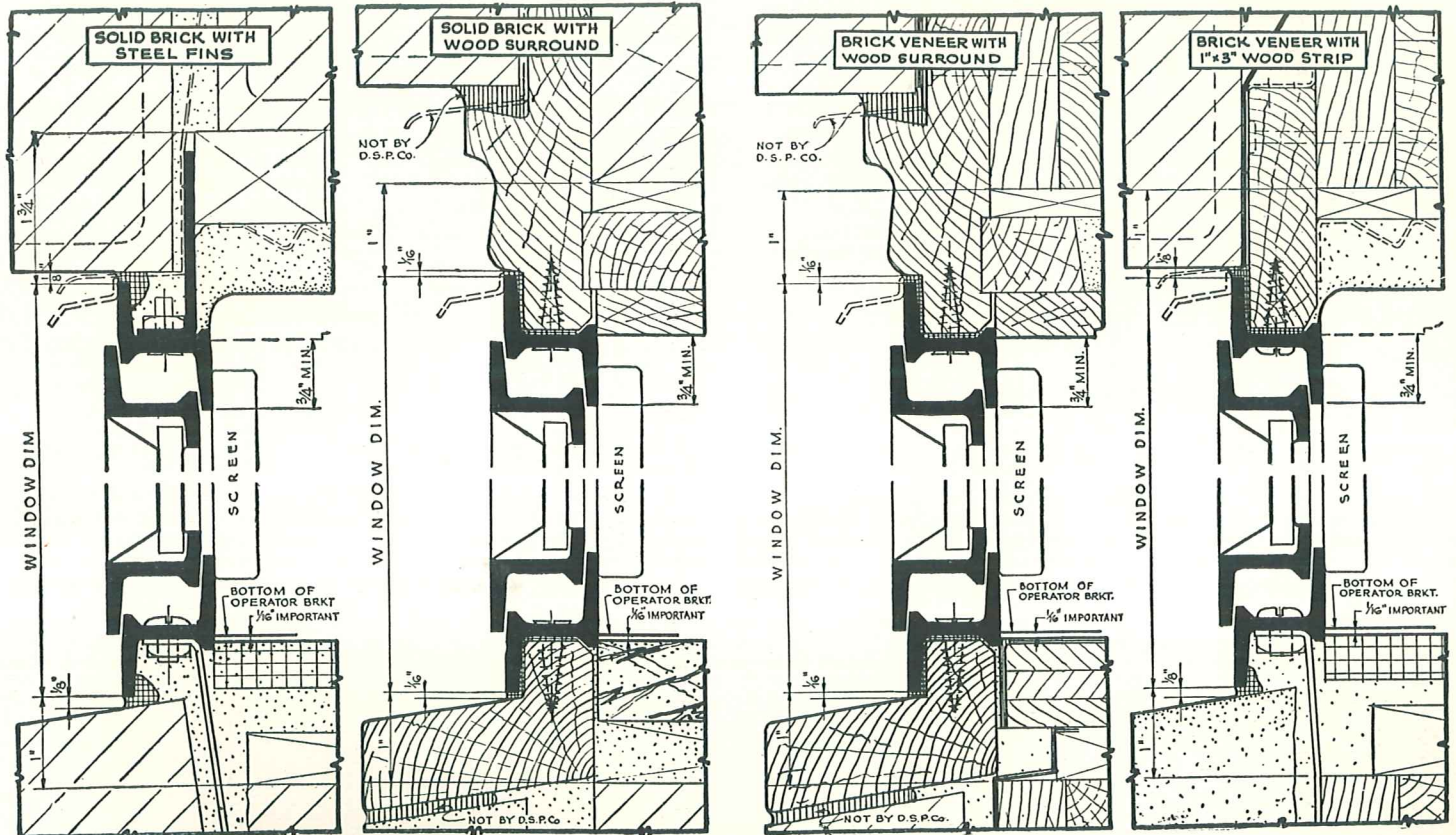
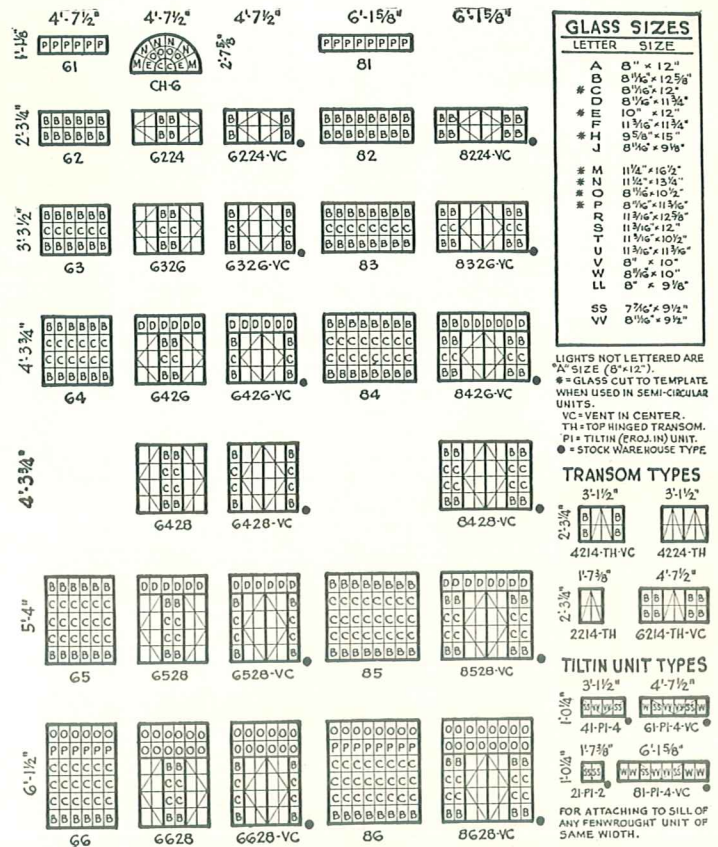
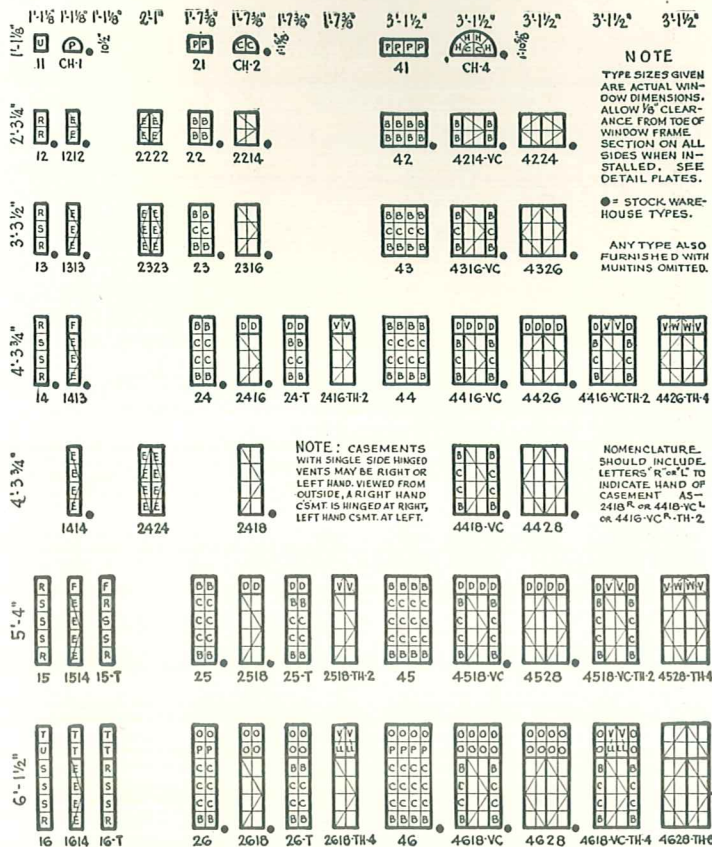
adjusting the nuts, friction may be increased or decreased. Top hung leaves have sherardized steel hinges with bronze pins.

Solid rolled steel brackets are welded to each swing leaf, each bracket carrying a drawn steel stud on which the locking handle is mounted and firmly attached by a friction clevis, screw and lock-washer, to prevent rattle. The locking handles themselves are of rust-proofed iron—solid bronze if specified—and are flat in design so that the screen and the casement swing leaf may be closed simultaneously without interference.

Hinged Screens set flat against the inside of the casement and swing on brass top and bottom studs. Screen frames are cold rolled bonderized steel tubes with corners mitered, re-inforced and butt-welded with extending flanges to permit clearance of hardware.

Frame painted one coat of baked enamel. Cloth is 16-mesh oxidized bronze wire. All screens removable. Rewirable. Rolling screens available if desired.





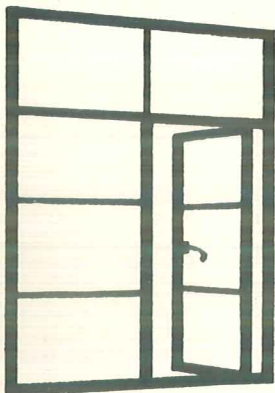


Where screens are to be used with roller shades or drapery brackets, casements with one-light high fixed transoms are desirable. Otherwise, shades and drapery must be attached in such a way as to permit clearance for the swing-in screen.

### ECONOMY FENWROUGHT CASEMENTS

Fenwrought Casements, Economy Type, are supplied in the types and sizes shown at right. On all types except those which are 2-panes high, a fixed light is used between the head of the swing leaf and the head of the window. This is due to the fact that where screens are used and also roller shades or drapery brackets, the fixed transom obviates the danger of interference. Where a fixed transom is not possible, shades and drapery must be attached in such a way as to allow clearance for the in-swinging screen.

The arrangement of the swing leaves and the omission of vertical muntins result in unusually wide glass lights and in the accentuation of horizontal lines popular in structures of "modernistic" design. The same treatment harmonizes well with Spanish or Italian architecture.



Economy Type

two in the same building—in the same room—or even in the same window opening. In such combinations the "Standard" types usually are specified "Vertical muntins omitted."

"Economy" Type Casements are exactly the same as "Standard" Types, both in material and in methods of construction. The same cleaning, friction hinges are used; the same flat type locking handles and inside swing-in screens are designed so that both the screen and the swing leaf may be closed simultaneously.

A considerable saving over the cost of "Standard" types is possible by the use of "Economy" types, however, and this saving applies not only to the cost of the window itself but also to many of the installation costs, notably the cost of glass and glazing.

Since the overall dimensions of "Economy" Types are the same as the dimensions of "Standard" Types, it is often advantageous to combine the

1'-7 3/8"	3'-1 1/2"	3'-1 1/2"	4'-7 1/2"	4'-7 1/2"
HM-2214	HM-4214-JH	HM-4224	HM-6224-JH	HM-6214-VC
3'-5 3/4"	3'-5 3/4"	3'-5 3/4"	3'-5 3/4"	3'-5 3/4"
HM-2314	HM-4314-JH	HM-4324	HM-6324-JH	HM-6314-VC
4'-3 3/4"	4'-3 3/4"	4'-3 3/4"	4'-3 3/4"	4'-3 3/4"
HM-2416	HM-4416-JH	HM-4426	HM-6426-JH	HM-6416-VC
5'-2 1/4"	5'-2 1/4"	5'-2 1/4"	5'-2 1/4"	5'-2 1/4"
HM-2518	HM-4518-JH	HM-4528	HM-6528-JH	HM-6518-VC

TABLE OF GLASS SIZES			
MARK	SIZE	MARK	SIZE
A2	16 5/16" x 12"	E2	17 1/8" x 12"
B2	17 1/8" x 12 5/8"	F2	17 3/8" x 12"
C2	17 3/8" x 12 5/8"	G2	17 1/2" x 11 3/4"
D2	17 1/2" x 11 3/4"		

LIGHTS NOT LETTERED ARE "A2"

#### NOTE

CASEMENTS WITH SINGLE VENTS MAY BE EITHER RIGHT OR LEFT HAND, DEPENDING ON SWING OF VENT DESIRED. WHEN VIEWED FROM THE OUTSIDE, A RIGHT HAND CASEMENT HAS VENT HINGED AT RIGHT AND A LEFT HAND HAS VENT HINGED AT LEFT.

OFFSET VENTS (AS IN TYPE HM-4518-JH) MUST ALWAYS BE HINGED AT THE JAMB OF FRAME.

NOMENCLATURE SHOULD INCLUDE THE LETTERS "R" or "L" TO INDICATE HAND AS: HM-4416-JH-R or HM-6518-VC-L

VC = VENT IN CENTER  
JH = VENT HINGED AT JAMB OF UNIT

Combinations of various units may be made just as with "Standard" units, by using mullions or transom bars. Such combinations can be formed to fill almost any desired opening of unusual width or height.

### FENESTRA CASEMENT DOORS

Fenestra Casement Doors in standard sizes are designed for use individually or combined with Fenwrought side-light and transom types.

Doors are designed with double swing-leaves opening in or out as specified. Glazed from the outside. Have 16-gauge double kick plates with wooden sound deadeners and close-in friction butts. Thresholds of extruded bronze are available at extra cost.

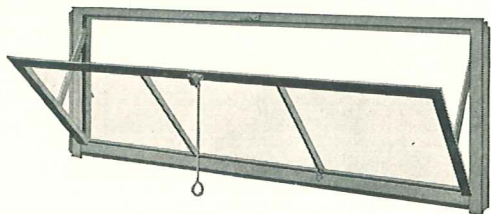
Hardware is of bronze. Handles on both sides of the active leaf operate a concealed bronze cremone bolt. Bronze top and bottom shot bolts are supplied on the inactive leaf.

A bronze thumb turn is supplied on the inside only.

Screen doors are not supplied.

### FENESTRA BASEMENT WINDOWS

1'-11 7/8" W.D.	1'-2 3/8" H.D.
2 LIGHTS 10" x 12"	
2'-9 3/4" W.D.	1'-2 3/8" H.D.
3 LIGHTS 10" x 12"	
2'-9 3/4" W.D.	1'-6 3/8" H.D.
3 LIGHTS 10" x 16"	
3'-3 3/4" W.D.	1'-8 3/4" H.D.
3 LIGHTS 12" x 16"	
2'-7 1/8" W.D.	1'-10 1/8" H.D.
2 LIGHTS 14" x 20"	
2'-9 3/4" W.D.	1'-10 3/8" H.D.
3 LIGHTS 10" x 20"	



Built from Casement sections. Both frame and ventilator pivot ended and welded at all four corners. Two point flat contact weathering all around the opening when vent is closed. Weather protected even when open.

Vents carried on steel balance arms, open to any one of three positions.

Easily removable when desired. Spring latch at head easily operated from floor by a 10" operating rod. A 14-gauge steel fin welded outside each jamb member imbeds in the masonry and forms a guide for mason in laying up both the inside and the outside of the wall.

Steel framed, bronze mesh screen avail-

able where specified. Attached in a jiffy with an ordinary screw driver.

Vertical mullions may be had for joining two or more windows side by side in the same opening.

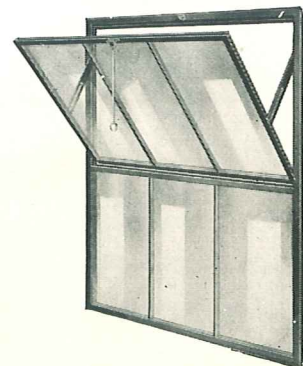
### FENESTRA UTILITY WINDOWS

Made of casement sections with the lower lights fixed. The ventilator is one-light high, tilts in at the top and is held by side arms. A spring catch at the head automatically locks the window when closed.

Made in one size only—3' 3 3/4" in width by 3' 7 1/4" in height.

Especially adapted to provide light in basements where houses are set close to the grade. The lower panes extend below the grade and a grating over the areaway makes the window appear one-light high as viewed from the outside.

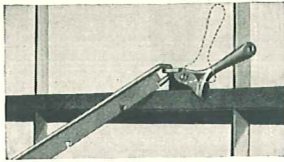
Utility Windows are also desirable for use in private garages, public garages, filling stations, stores, shops and farm buildings. The tilt-in ventilator does not interfere with the use of space directly below the window and it admits abundant ventilation without any direct drafts.



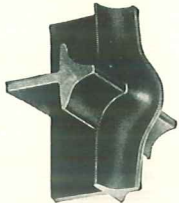
"Utility" Window



# FENESTRA PIVOTED WINDOWS



Cam Handle and Stay Bar



Patented Joint



External Adjustable Butt

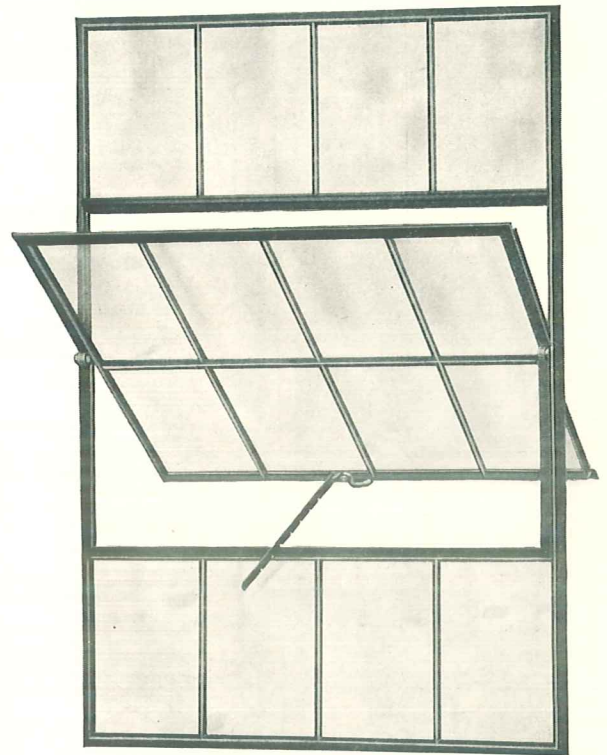
Fenestra Horizontally Pivoted Windows are suited to every type of industrial building, offering permanent fireproof construction, maximum daylight, and great flexibility as to number and location of ventilators.

Sections are solid rolled steel with Vertex Profiles,  $1\frac{3}{8}$ " deep from front to back; muntins interlocked by Fenestra joint which increases strength at point of intersection. Ventilators weather with a continuous, 2-point, flat contact on all four sides and are hung on external adjustable, solid rolled steel butts located 2" above center.

Ventilators are equipped with solid rolled Z-bar brackets for hardware attachment and usually equipped with a cam handle for locking and a notched stay bar for holding the ventilator open. The stay may be eliminated, using a chain controlled handle or spring catch.

Fenestra Pivoted Windows may be supplied with the Underwriters' label, requiring the use of continuous angles for glazing and subject to some limitations in unit and glass sizes.

Stock types are carried in warehouses in principal distribution centers.



Fenestra Horizontally Pivoted Window Type 44181

## • HORIZONTALLY PIVOTED WINDOW TYPES AND SIZES •

3'-15/8"	32	32160	42	42140	42180	52	52160	62180
4'-8"	33	33161	43	43141	43181	53	53161	63181
6'-2 3/8"	34	34161	44	44141	44181	54	54161	64181
7'-8 3/4"	35	35161	45	45141	45181	55	55161	65181
9'-3 1/8"	36161							
10'-3 1/8"								
18" GLASS								
20" GLASS								
2'-1 5/8"	3'-2"		4'-2 3/8"			5'-2 3/4"		6'-3 1/8"
2'-5 5/8"	3'-8"		4'-10 3/8"			6'-0 3/4"		7'-3 1/8"

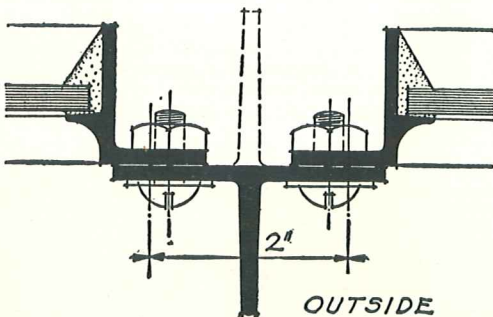
● INDICATES TYPES STOCKED IN ALL WAREHOUSES ~ ~ ~  
BARS ONLY OF TYPES NOT MARKED ARE STOCKED AT FACTORY FOR ASSEMBLY AS ORDERED



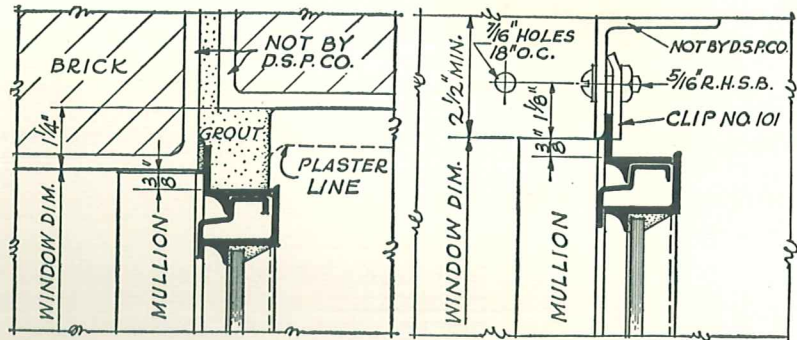
## SYMMETRICAL COMBINATIONS

OPENING DIMENSIONS				NO. UNITS IN OPENING	NO. LIGHTS IN OPENING	ARRANGEMENT OF UNITS IN OPENING FIGURES INDICATE THE NUMBER OF LIGHTS IN WIDTH OF EACH UNIT.
18" HEIGHTS		20" HEIGHTS				
PANES	DIM.	PANES	DIM.			
2	3'-1 <sup>7</sup> / <sub>8</sub> "	2	3'-5 <sup>7</sup> / <sub>8</sub> "			
3	4'-8"	3	5'-2"			
4	6'-2 <sup>3</sup> / <sub>8</sub> "	4	6'-10 <sup>3</sup> / <sub>8</sub> "			
5	7'-8 <sup>3</sup> / <sub>4</sub> "	5	8'-6 <sup>3</sup> / <sub>4</sub> "			
6	9'-3 <sup>3</sup> / <sub>8</sub> "	6	10'-3 <sup>3</sup> / <sub>8</sub> "			
7	10'-9 <sup>1</sup> / <sub>2</sub> "	7	11'-11 <sup>1</sup> / <sub>2</sub> "			
12" WIDTHS		14" WIDTHS				
* 2'-1 <sup>5</sup> / <sub>8</sub> "		* 2'-5 <sup>3</sup> / <sub>8</sub> "		1	2	2
3'-2"		3'-8"		1	3	3
4'-2 <sup>3</sup> / <sub>8</sub> "		4'-10 <sup>3</sup> / <sub>8</sub> "		1	4	4
4'-5 <sup>1</sup> / <sub>4</sub> "		5'-1 <sup>1</sup> / <sub>4</sub> "		2	4	2,2
5'-2 <sup>3</sup> / <sub>4</sub> "		6'-0 <sup>3</sup> / <sub>4</sub> "		1	5	5
6'-3 <sup>3</sup> / <sub>8</sub> "		7'-3 <sup>3</sup> / <sub>8</sub> "		1	6	6
6'-6"		7'-6"		2	6	3,3
8'-6 <sup>3</sup> / <sub>4</sub> "		9'-10 <sup>3</sup> / <sub>4</sub> "		2	8	4,4
9'-10"		11'-4"		3	9	3,3,3
10'-7 <sup>1</sup> / <sub>2</sub> "		12'-3 <sup>1</sup> / <sub>2</sub> "		2	10	5,5
10'-10 <sup>3</sup> / <sub>8</sub> "		12'-6 <sup>3</sup> / <sub>8</sub> "		3	10	3,4,3
11'-10 <sup>3</sup> / <sub>4</sub> "		13'-8 <sup>3</sup> / <sub>4</sub> "		3	11	3,5,3
11'-10 <sup>3</sup> / <sub>4</sub> "		13'-8 <sup>3</sup> / <sub>4</sub> "		3	11	4,3,4
12'-8 <sup>1</sup> / <sub>4</sub> "		14'-8 <sup>1</sup> / <sub>4</sub> "		2	12	6,6
12'-11 <sup>1</sup> / <sub>8</sub> "		14'-11 <sup>1</sup> / <sub>8</sub> "		3	12	4,4,4
13'-2"		15'-2"		4	12	3,3,3,3
13'-11 <sup>1</sup> / <sub>2</sub> "		16'-1 <sup>1</sup> / <sub>2</sub> "		3	13	4,5,4
13'-11 <sup>1</sup> / <sub>2</sub> "		16'-1 <sup>1</sup> / <sub>2</sub> "		3	13	5,3,5
14'-11 <sup>1</sup> / <sub>8</sub> "		17'-3 <sup>1</sup> / <sub>8</sub> "		3	14	4,6,4
14'-11 <sup>1</sup> / <sub>8</sub> "		17'-3 <sup>1</sup> / <sub>8</sub> "		3	14	5,4,5
15'-2 <sup>3</sup> / <sub>4</sub> "		17'-6 <sup>3</sup> / <sub>4</sub> "		4	14	3,4,4,3
16'-0 <sup>1</sup> / <sub>4</sub> "		18'-6 <sup>1</sup> / <sub>4</sub> "		3	15	5,5,5
16'-0 <sup>1</sup> / <sub>4</sub> "		18'-6 <sup>1</sup> / <sub>4</sub> "		3	15	6,3,6
16'-6"		19'-0"		5	15	3,3,3,3,3
17'-0 <sup>5</sup> / <sub>8</sub> "		19'-8 <sup>5</sup> / <sub>8</sub> "		3	16	5,6,5
17'-0 <sup>5</sup> / <sub>8</sub> "		19'-8 <sup>5</sup> / <sub>8</sub> "		3	16	6,4,6
17'-3 <sup>1</sup> / <sub>2</sub> "		19'-11 <sup>1</sup> / <sub>2</sub> "		4	16	4,4,4,4
17'-3 <sup>1</sup> / <sub>2</sub> "		19'-11 <sup>1</sup> / <sub>2</sub> "		4	16	3,5,5,3
17'-6 <sup>3</sup> / <sub>8</sub> "		20'-2 <sup>3</sup> / <sub>8</sub> "		5	16	3,3,4,3,3
18'-1"		20'-11"		3	17	6,5,6
18'-6 <sup>3</sup> / <sub>4</sub> "		21'-4 <sup>3</sup> / <sub>4</sub> "		5	17	3,4,3,4,3
19'-1 <sup>3</sup> / <sub>8</sub> "		22'-1 <sup>3</sup> / <sub>8</sub> "		3	18	6,6,6
19'-4 <sup>1</sup> / <sub>4</sub> "		22'-4 <sup>1</sup> / <sub>4</sub> "		4	18	3,6,6,3
19'-4 <sup>1</sup> / <sub>4</sub> "		22'-4 <sup>1</sup> / <sub>4</sub> "		4	18	4,5,5,4
19'-7 <sup>1</sup> / <sub>8</sub> "		22'-7 <sup>1</sup> / <sub>8</sub> "		5	18	3,4,4,4,3
20'-7 <sup>1</sup> / <sub>2</sub> "		23'-9 <sup>1</sup> / <sub>2</sub> "		5	19	3,5,3,5,3
21'-5"		24'-9"		4	20	5,5,5,5
21'-5"		24'-9"		4	20	4,6,6,4
21'-7 <sup>1</sup> / <sub>8</sub> "		24'-11 <sup>1</sup> / <sub>8</sub> "		5	20	4,4,4,4,4
21'-10 <sup>3</sup> / <sub>4</sub> "		25'-2 <sup>3</sup> / <sub>4</sub> "		6	20	3,3,4,4,3,3

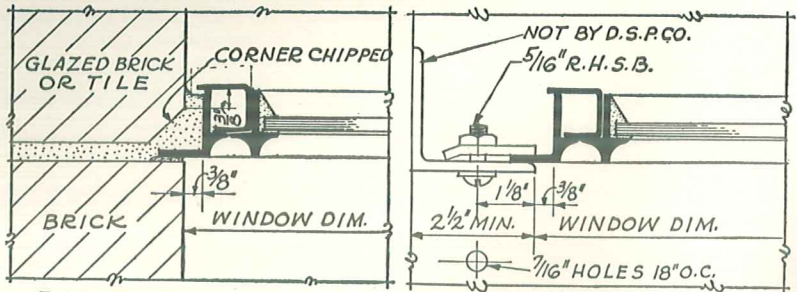
\* TWO LIGHT WIDE UNITS ARE FURNISHED IN THREE LIGHT HEIGHTS ONLY \*



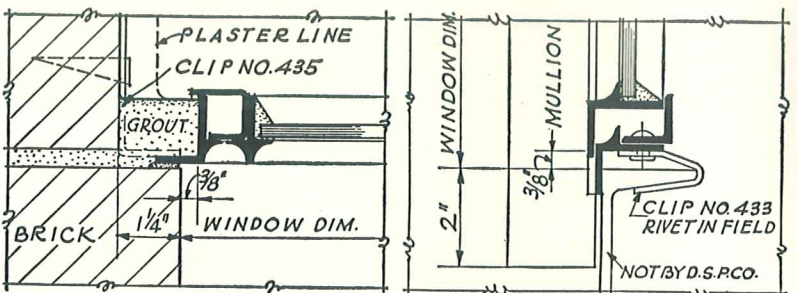
OUTSIDE



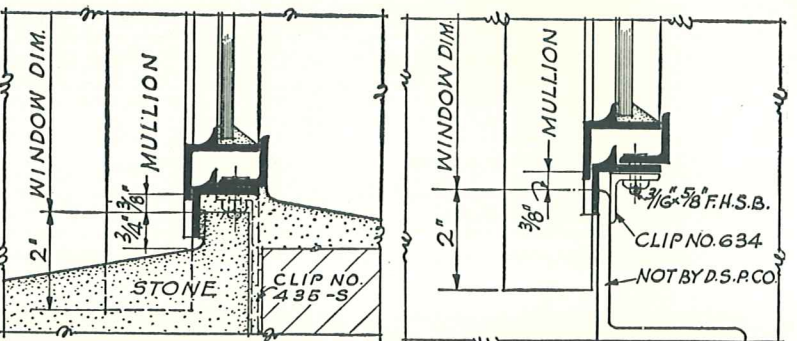
HEAD-4-A ANGLE SHOULD ALWAYS BE OFFSET AS SHOWN HEAD-10-A STEEL ANGLE. CLIP & BOLT FURNISHED BY D.S.P.CO.



JAMB-5-A FOR MULTIPLE UNIT OPENINGS ONLY JAMB-11-A STEEL ANGLE CLIP & BOLT FURNISHED BY D.S.P.CO.



JAMB-5-A FOR SINGLE OR MULTIPLE UNIT OPENINGS. SILL-12-A STEEL CHANNEL CLIP & RIVET FURNISHED BY D.S.P.CO.



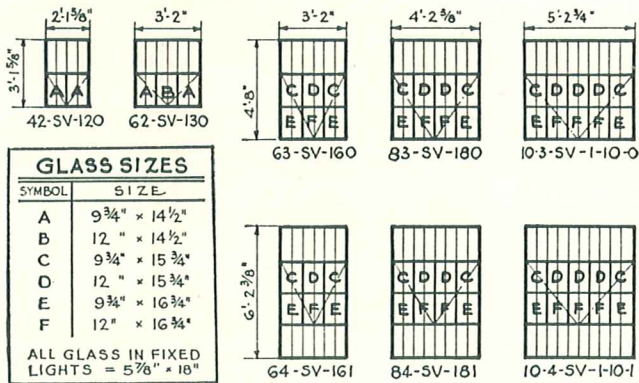
SILL-6-A CUT STONE. SILL-12-B STEEL ANGLE. CLIP & BOLT FURNISHED BY D.S.P.CO.

BRICK

STEEL

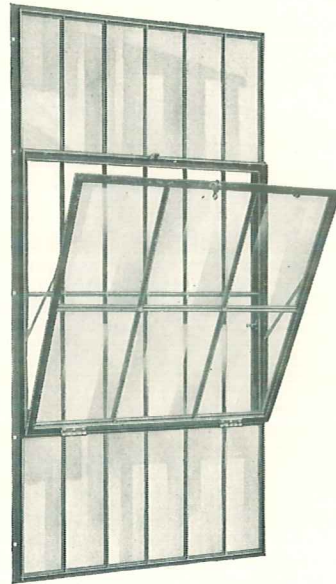


## SECURITY WINDOWS



Security Windows, made in eight sizes, consist of a main frame with bars spaced to provide 6"x18" openings. On the inside of the main frame is super-imposed a bottom hinged, open in ventilator with bars spaced to provide 12"x17" openings. Ventilators are supported by steel side arms.

Openings in the main frame, above and below the ventilator, are to be glazed, but those immediately in front of the ventilator are left unglazed to act as a grille.

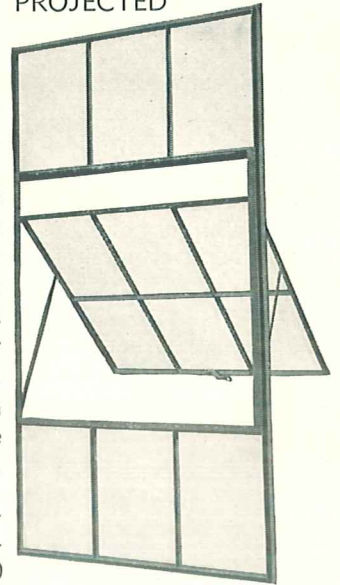


Security Window

Thus Security Windows combine a solid steel window and solid steel grille, all in one unit and erected in one piece. Both vertical and horizontal bars are equivalent in strength to 5/8" round bars.

## COMMERCIAL PROJECTED

Commercial Projected Windows are similar to Horizontally Pivoted Windows except that the ventilators are balanced on spring steel side arms and are equipped with bronze friction shoes so that they open entirely inside or entirely outside the plane of the window. This arrangement permits easy shading and screening, and open-in vents one pane high are frequently used at the sill in place of wind guards.



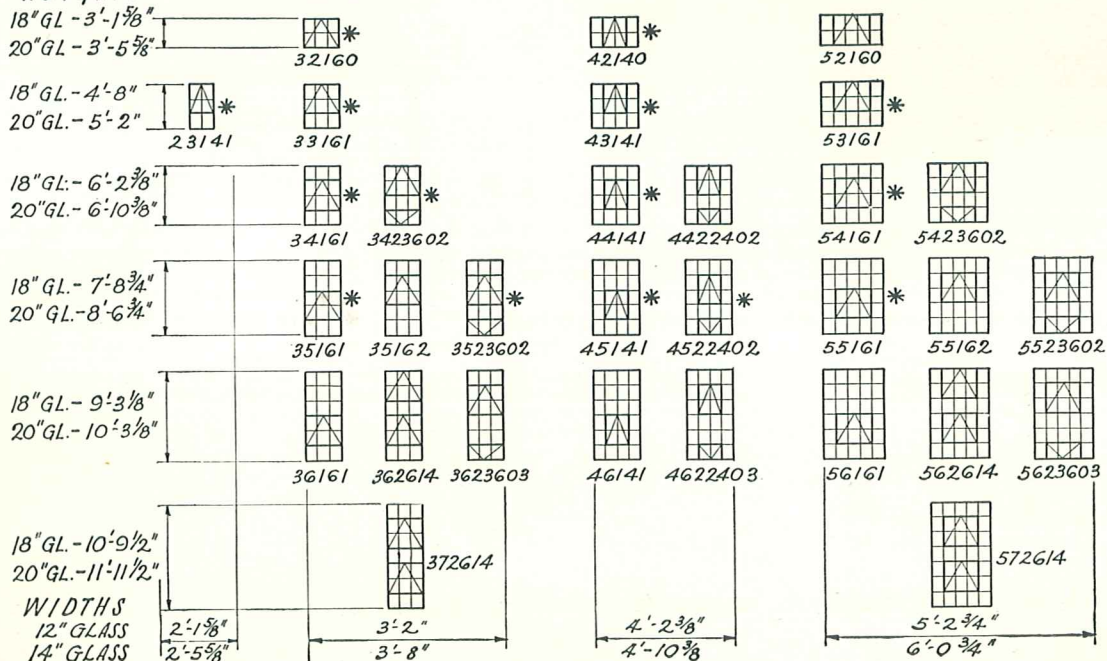
Commercial Projected

Open-out vents are provided with spring stops limiting the vent travel to 60 degrees but, for washing purposes, these stops may be depressed and the vent opened still further so that all glass may be washed on the outside from the inside. Appropriate hardware is supplied in malleable iron (bronze at an extra). The windows may be supplied with Underwriters' label when equipped with continuous glazing angles, but subject to some limitations in units and glass sizes.

## STANDARD TYPES ~ COMMERCIAL PROJECTED

## HEIGHTS

\* TYPES SHOWN STARRED ARE CARRIED IN STOCK





# FENESTRA CONTINUOUS WINDOWS

Fenestra Continuous Windows equipped with Fenestra Continuous Operator are particularly designed for use in monitor and sawtooth roof construction where the plane of the windows is on a slope. They may be used in vertical planes where necessary.

Standard units of Continuous Windows measure 20' in length (dimensions points equal the clear opening). We recommend for economical arrangement of operator arms that units vary in multiples of 4' (8', 12', 16', etc.). Smaller units may be used if necessary, in widths varying in multiples of 2' (that is, 8', 10', 12', etc.).

All sections are specially designed, hot rolled, Vertex profile, solid steel bars. Head and end jamb members are special angles. Muntins are special T's 1 3/8" deep. Sills are especially designed sections with long down-standing legs bent at the end to make close contact with the building construction.

All members of the window are accurately fitted and rigidly riveted at the joints to form standard panel units. Panels are joined (when erected), end to end midway between T muntins, by splice plates bolted to head and sill members.

At the ends of all swing sections next to the building construction 1' stationary panels are provided. Between the ends of swing sections 2' stationary panels are provided.

The joint between swing sections and stationary sections is covered and protected by a specially formed, 14-gauge, steel channel with one leg secured to the end angle of the swing section and the other designed to overlap the end angle of the stationary section.

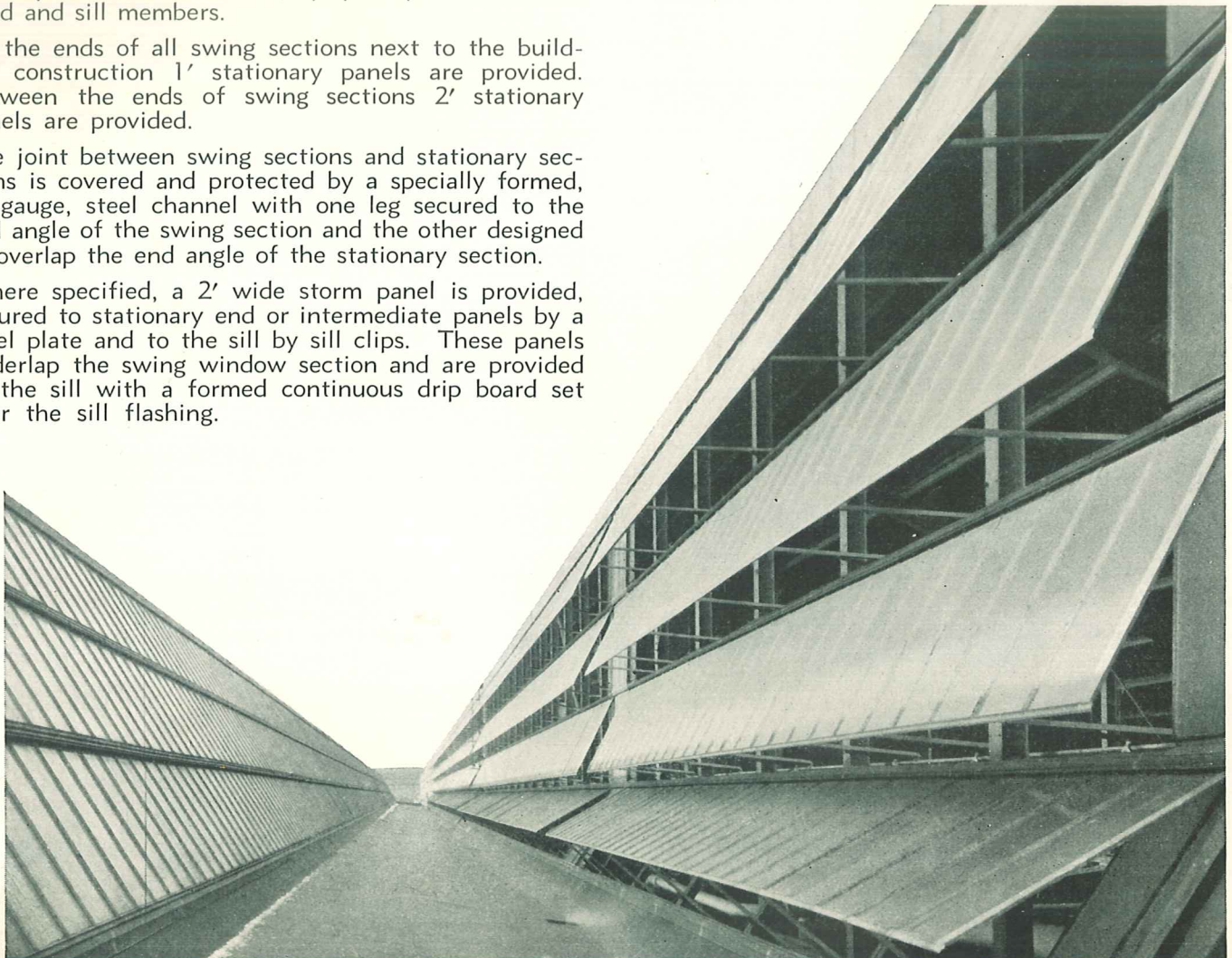
Where specified, a 2' wide storm panel is provided, secured to stationary end or intermediate panels by a steel plate and to the sill by sill clips. These panels underlap the swing window section and are provided at the sill with a formed continuous drip board set over the sill flashing.

Continuous Windows are usually top hung on heavy malleable iron butts, with 3/8" brass pins, spaced 4' apart on centers. Butts are rigidly riveted to the head angle and furnished with bolts for attachment to the building girts.

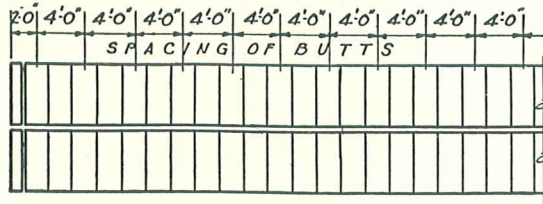
All Continuous Windows are given one dip coat of red mineral paint before shipment. Additional coats of paint should be applied after erection but before glazing.

The windows are designed for glazing from the outside with 1/4" rough wire glass. All glass should be set in a heavy bed of steel window putty and secured at the muntins and end angles by angle clips secured with bolts. Face putty should be applied at sills.

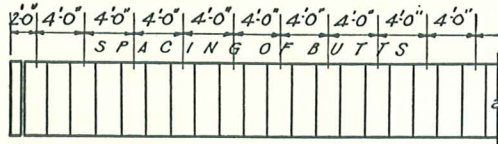
Continuous Windows are also supplied without swing sections to be used as fixed windows, heavy steel angle clips being bolted to the window head and the building girts in place of the butts used on top hung Continuous Windows. Steel sill clips are furnished with fixed windows, shipped flat, to be bolted to the sill of the window and bent around the steel sill girt to rigidly secure the window in position at the bottom.







ELEVATION-DOUBLE RUN

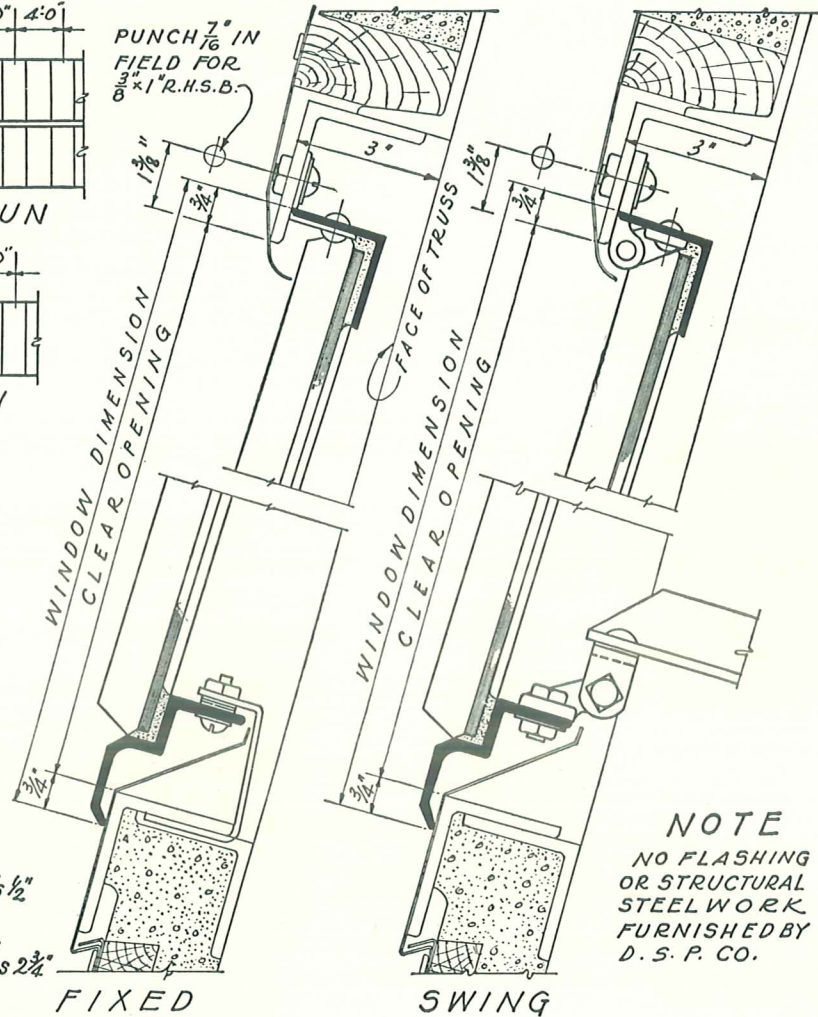


ELEVATION-SINGLE RUN

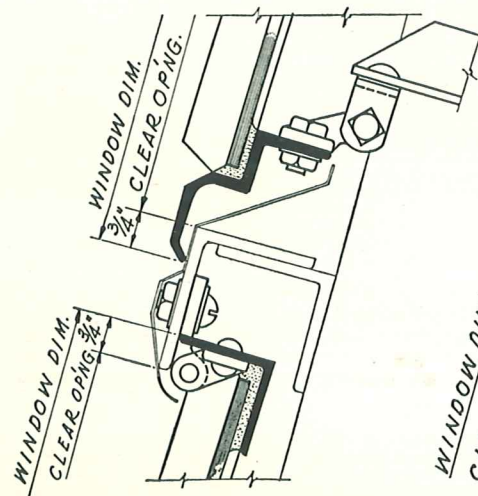
WINDOW HEIGHT	GLASS WIDTH	GLASS HEIGHT
3'-0"	23 1/2"	2'-9 1/4"
4'-0"	23 1/2"	3'-9 1/4"
5'-0"	23 1/2"	4'-9 1/4"
6'-0"	23 1/2"	5'-9 1/4"

TABLE OF WINDOW DIMENSIONS AND CLEAR OPENINGS.	
WINDOW-D.	CLEAR O.
3'-0"	2'-10 1/2"
4'-0"	3'-10 1/2"
5'-0"	4'-10 1/2"
6'-0"	5'-10 1/2"

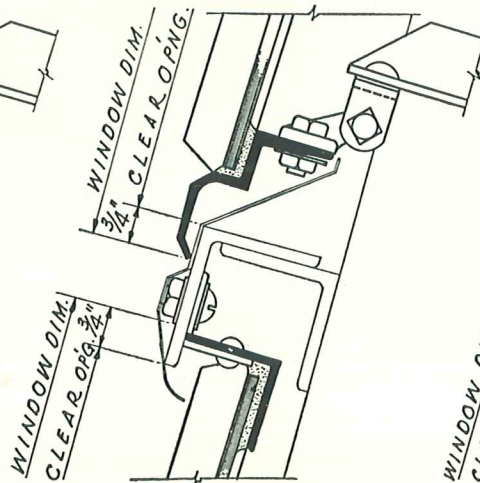
GLASS SIZES  
WIDTH  
EQUALS BAR  
CENTERS MINUS 1/2"  
HEIGHT  
EQUALS SASH  
DIMENSION MINUS 2 3/4"



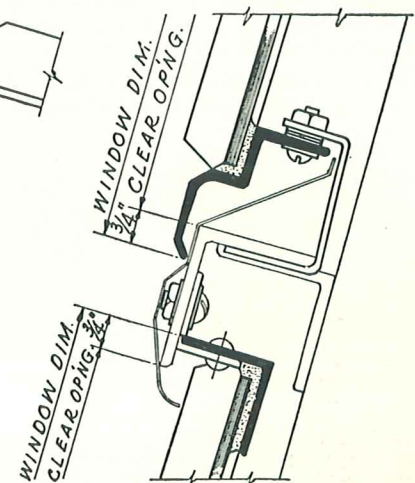
NOTE  
NO FLASHING  
OR STRUCTURAL  
STEEL WORK  
FURNISHED BY  
D. S. P. CO.



SWING OVER SWING



SWING OVER FIXED

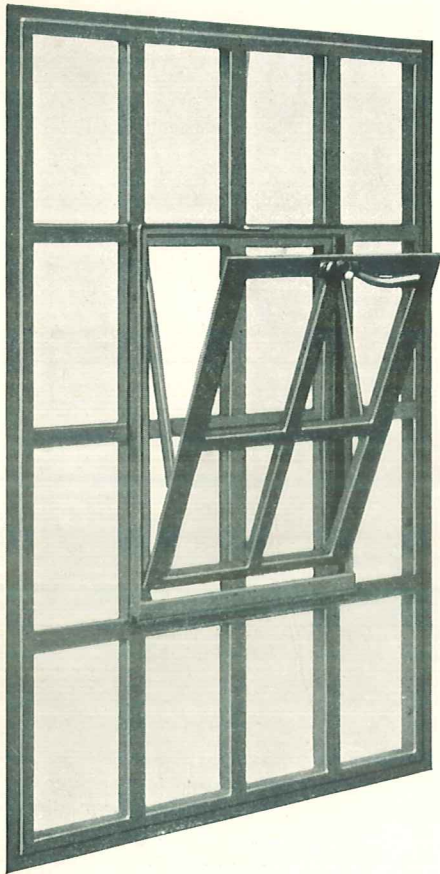


FIXED OVER FIXED

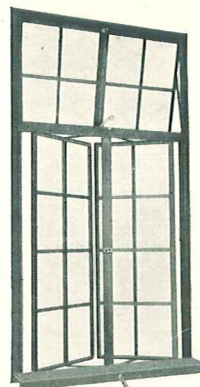
SCALE: 3"=1'-0"



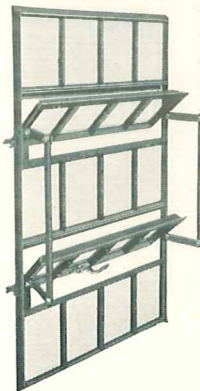
# FENESTRA DETENTION WINDOWS



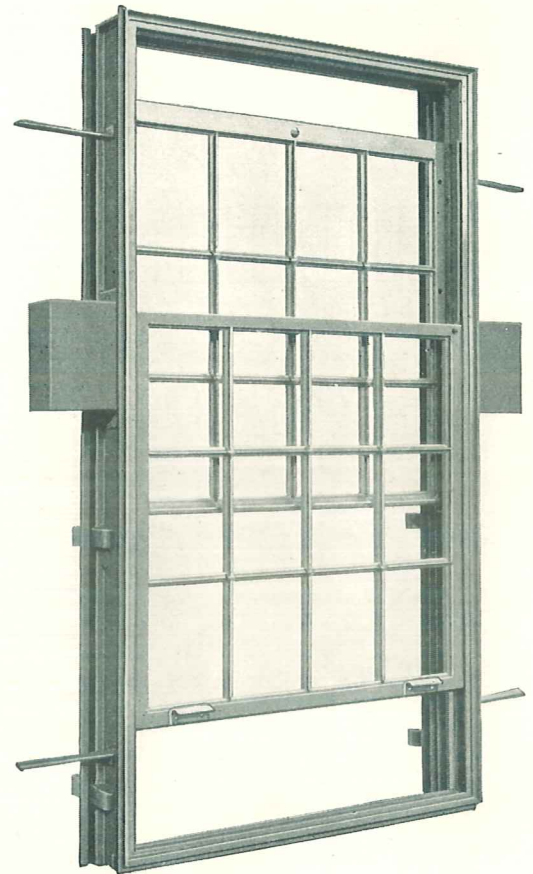
Super-Bar



Side Projected



Horizontally Pivoted



Spring Balance

The design of a detention window is determined mainly by the degree of restriction necessary, and the architectural appearance desired. Fenestra has developed many types, only a few of the more widely used designs being shown. Windows suitable for nearly all conditions are available, and Fenestra Engineers will gladly assist in making a choice, or in designing to meet unusual individual needs.

## SUPER-BAR WINDOWS

This window offers maximum restriction, the fixed light or grille portion being constructed of extra heavy rolled steel bars  $1\frac{3}{4}$ " deep and weighing slightly over 2 lbs. per lineal foot. Open-in ventilators are attached to the inside face of the fixed unit, which is not glazed in lights adjacent to the ventilator. The heavy bars form a lattice grille over the ventilator opening.

The fixed unit is constructed for outside glazing with 6" x 9" glass. Frame corners, muntin and frame intersections, and muntin joints, are thoroughly welded, both inside and out.

Ventilators are attached to inside of the fixed unit by continuous welding along sill and at muntin points at head and jambs; and may be equipped for individual control by hand or pole, or operated in groups with a mechanical device. Screening is easily accomplished with an outside screen.

Super-Bar windows with muntins of special, tool resisting steel, at extra cost.

Windows of similar design may be obtained, constructed with  $1\frac{1}{2}$ " or  $1\frac{1}{4}$ " deep bars in the fixed grille portion.

## SPRING BALANCE WINDOWS

This window has the appearance of the conventional double hung unit, but the opening can be regulated by a jamb lock with special key.

Ventilators are hung on concealed tapes operating through spring balances, exactly adjusted to balance the weight of the glazed sash.

## SIDE PROJECTED WINDOWS

This window has the appearance of the conventional casement, detention being secured by limiting all movable portions to a maximum opening of 5". In the open position, the outer rails of the side projected ventilators are almost in contact making any hinges or connections at this point unnecessary.

Two side projected leaves (a single leaf cannot be used) are operated simultaneously by a screw-type device concealed under the steel stool, and are locked individually by cams concealed at the center of the vertical meeting rail.

Unit widths are limited to 3' minimum and 4' 6" maximum; side projected leaves to a 5' maximum height.

If a projected-out transom is used, it is controlled by a worm and gear concealed in the vertical meeting rail, and is operated by a concealed stud located just above the locking cam. A single removable handle is used for all operating and locking arrangements.

The interior offers a particularly clean appearance, with no projecting hardware; and for this reason is very easily screened on the inside.

## HORIZONTALLY PIVOTED WINDOWS

Window is of standard horizontally pivoted construction, with glass lights limited to approximately 6" x 9", and one-light high ventilators. It is frequently used in workshops located within the walls of the modern penitentiary. The number of ventilators may be regulated to suit conditions, and they are usually controlled in unison by double connecting bars, as illustrated.



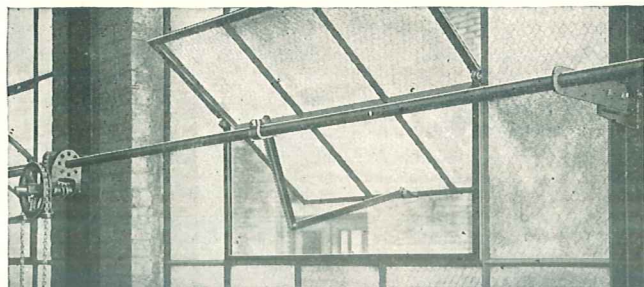
# FENESTRA OPERATING DEVICES

Fenestra Operating Devices are not sold as separate products, but only as methods of mechanically opening and closing Fenestra Windows. Erection should always be handled by the Fenestra Construction Company or an authorized Fenestra agent.

Due to the variety of conditions encountered, it is

advisable that a Fenestra Engineer be consulted to insure a practical and economical layout. The types shown are standardized designs which are adequate to meet most conditions.

Fenestra Engineers will co-operate in designing mechanical devices to meet unusual individual needs.



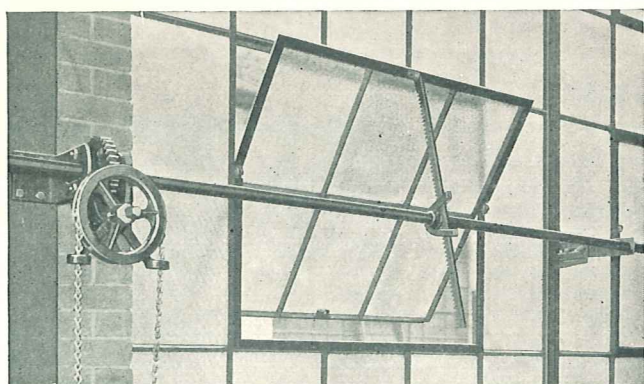
Worm and Gear Operator

## FENESTRA WORM AND GEAR OPERATOR

Designed for manual operation, controlling horizontally pivoted or projected ventilators in single or multiple tiers.

The power consists of a machine-cut, cast-iron worm, equipped with ball thrust bearings, operating a cast-iron segmental worm gear assembled in a steel housing.

The power, for chain or mitre gear and pipe control, is located preferably in the center of the run, but may be located at the end.



Rack and Pinion Operator

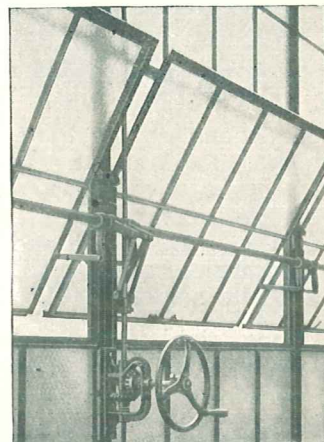
## FENESTRA RACK AND PINION OPERATOR

Similar to worm and gear, except that the operator arms are straight racks engaging pinions on the transmission line. Considerably longer runs may be controlled from one power.

Operation may be by chain or mitre gear and vertical pipe, or an electrical hook-up may be used. Rack and pinion operator will handle short runs of Fenestra Continuous Windows.

## FENESTRA SCREW TYPE OPERATOR

Designed for neat, inconspicuous appearance. The vertical pipe, horizontal transmission line and ventilator arms lie snugly against the inside face of window. The power may be manually or electrically controlled. This device is particularly suitable for high openings containing vertical tiers of ventilators.



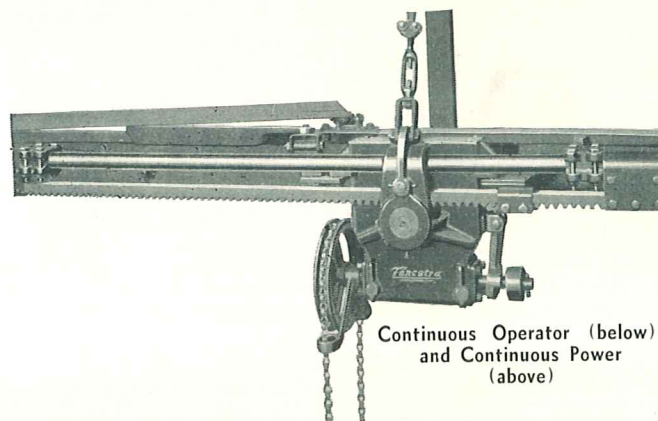
Screw Type Operator

## FENESTRA CONTINUOUS OPERATOR

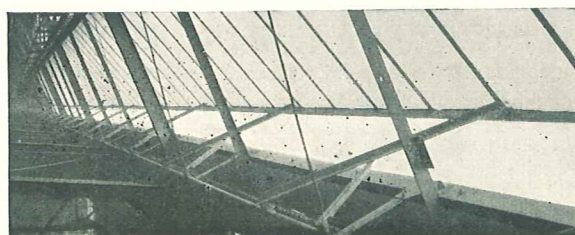
Designed to operate continuous windows, either manually or electrically in single or multiple banks.

Heavy construction and extreme care in assembly give this operator unusual strength and reliability.

The power may be located at either end of the run, not closer than 20' to the end. Operator arms are spaced about 10' on centers.



Continuous Operator (below),  
and Continuous Power  
(above)





# FENESTRA STEEL DOORS

The range of Fenestra Steel Doors begins with general purpose "Fireshield" types in the non-labeled, metal-clad field and extends to counter-balanced hangar types with individual leaves 150' wide by 32' high, operated electrically. Swinging and sliding doors include: "Fireshield," "Industrial" and "Accordion" Types. Special purpose doors include: "Vertical Lift," "Bifold," "Canopy," "Byrne A" and "Pier" Types. Hangar Doors include "Byrne B" and "Horizontally Rolling" Types.

Detailed information, dimensions, clearances, etc. for any or all of these types will be supplied on request.

All doors are of steel, accurately assembled and designed for unusual weather-tightness and quick, easy operation.

Fenestra Engineers will gladly furnish specifications for high speed door equipment for special openings in all types of industrial and engineering structures.

## FENESTRA "FIRESHIELD" DOORS

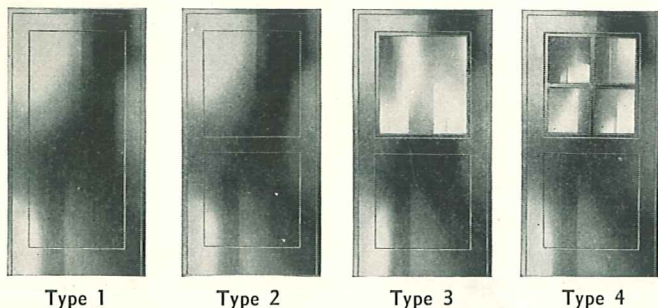
Single and double tubular steel doors complete with hinges, locks and frames. Designed for stairway entrances, service departments, operating rooms, theater dressing rooms, consultation rooms, store rooms, janitors' closets, toilets and any other locations where a non-labeled, metal-clad door can be used and where purely ornamental finish is secondary.

Strong, rigid, attractively designed, non-inflammable, free from warping, sticking, swelling and concealed deterioration.

Single Widths	Double Widths	Heights
2' 6"	5' 0"	6' 6"
2' 9"	5' 6"	6' 9"
3' 0"	6' 0"	7' 0"

Any of these widths may be combined with any height shown.

A choice of five types of locks and three types of hinges. No templates necessary. No need to purchase hardware locally. U. S. Govt. No. 9 solid bronze finish is standard. Seven other U. S. Govt. finishes are available.



Type 1

Type 2

Type 3

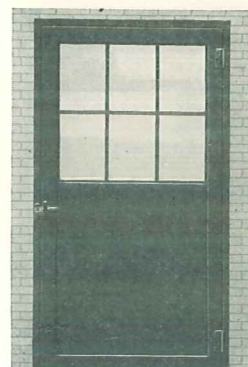
Type 4

Steel frames are 16-gauge steel, shipped knocked down in standard sizes or assembled and welded. Frame depths fit 4", 6" or 8" plastered walls.

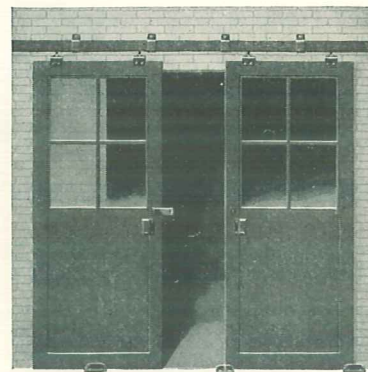
## FENESTRA INDUSTRIAL DOORS

These doors meet the demand for neat, clean appearance for either entrance or partition openings.

Rails and stiles of pressed tubular sections mitered at corners and solidly welded over heavy steel reinforcements. Lower panels filled with steel plates. Upper panels have sash muntins neatly welded into stiles and rails. Doors can be fitted with master-keyed cylinder locks, panic bolts and door checks. Special sizes if required. Stock sizes include:



Fenestra Swing Door

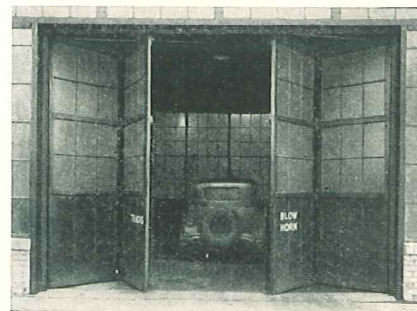


Fenestra Double Sliding Doors

Single Doors				Double Doors			
Swing Opening		Slide Opening		Swing Opening		Slide Opening	
Width	Height	Width	Height	Width	Height	Width	Height
2' 6"	7' 0"	2' 3"	6' 10 1/2"	5' 0"	7' 0"	4' 9"	6' 10 1/2"
3' 0"	7' 0"	2' 9"	6' 10 1/2"	6' 0"	7' 0"	5' 9"	6' 10 1/2"
3' 6"	7' 6"	3' 3"	7' 4 1/2"	7' 0"	7' 6"	6' 9"	7' 4 1/2"
4' 0"	8' 0"	3' 9"	7' 10 1/2"	8' 0"	8' 0"	7' 9"	7' 10 1/2"
5' 0"	10' 0"	4' 9"	9' 10 1/2"	10' 0"	10' 0"	9' 9"	9' 10 1/2"

## FENESTRA "ACCORDION" DOORS

Primarily applicable to public garages, bus terminals, street-car and railway repair shops. They are designed to fill wide, high openings with ample clearances for cars or trucks. May be arranged to open either in or out. Manually operated or electrically connected to remote control stations. These doors are built for heavy and constant usage.



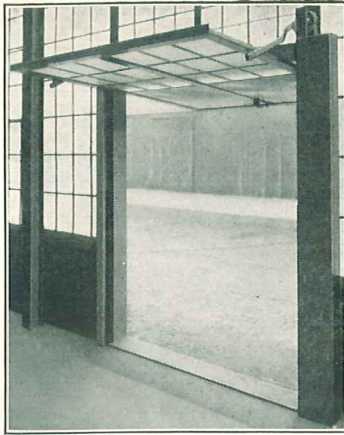
Fenestra "Accordion" Door

## FENESTRA OVERHEAD DOORS

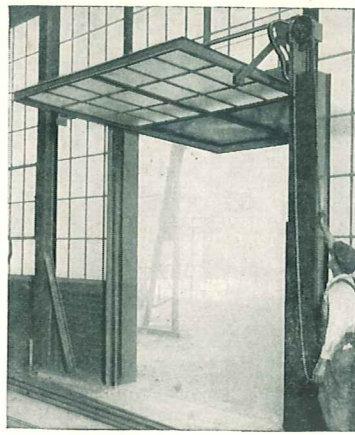
Where economy of floor space is a factor or where swinging or sliding doors are undesirable, Fenestra offers five types of overhead doors as listed below. Counterweights and clearances (at head or jambs or both) are important. Special information on these points is available on request.

"CANOPY" Doors are of balanced construction. Each

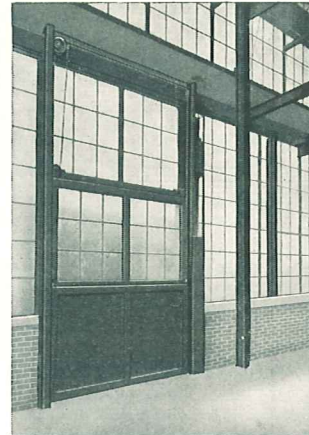




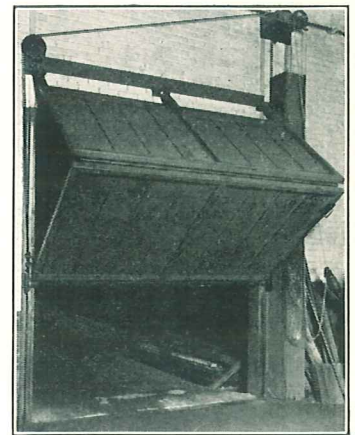
Fenestra Canopy Door



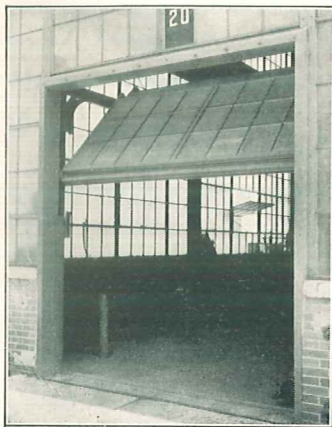
Fenestra-Byrne Type A Door



Fenestra Vertical Lift Door



Fenestra Bi-fold Door



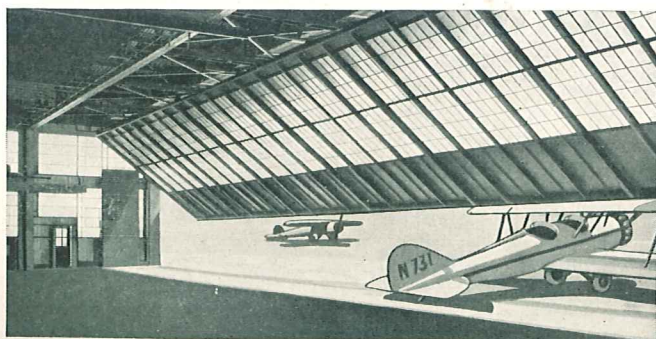
Fenestra Pier Door

door consists of a single leaf, swinging out at the bottom and in at the top, hand or electrically operated and moving with unusual speed and ease from a closed, vertical position to an open horizontal position at the head of the opening, half inside and half outside the building.

"BYRNE A" Doors are also of the single leaf type. In opening, the counter-balanced leaf rises vertically 4" (clearing snow and ice) then tilts and rises to a horizontal position at the head of the opening, half inside and half outside the building. Hand or electric power. Adaptable to conventional types of buildings.

### FENESTRA "BYRNE B" DOORS

Fenestra "Byrne B" Doors are designed with one single leaf up to 150' wide by 32' high. Due to its inherent balance and quick, easy operation, this door is especially desirable for large openings where conventional door equipment fails because of its own dead weight or the impracticability of installation. In opening, the door lifts vertically 8" (clearing snow and ice) then



World's Largest Single Leaf Door, Fenestra-Byrne B, Municipal Airport, Denver, Colo.

"VERTICAL LIFT" Doors are designed with two counter-balanced leaves, one above the other. In opening, the lower leaf slides up inside the upper and both leaves slide up to a vertical position above the door opening and entirely inside the building. Head clearance equal to half the opening height plus 1' 8" is required. Hand or electric operation.

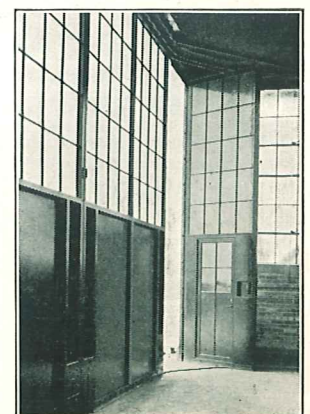
"BIFOLD" Doors are made with two leaves hinged at the horizontal centerline of the opening. The lower leaf folds up against the outside of the upper leaf and both leaves fold to a position above the opening and inside the building. Electric operator cannot be used.

"PIER" Doors have two horizontal, counter-balanced leaves. In opening, the lower leaf slides up inside the upper leaf and both leaves then slide back on horizontal tracks until they lie in a horizontal position above the opening and entirely inside the building. Hand or electric operation.

tilts as it rises until when fully open it is practically horizontal above the opening, half inside and half outside the building. Power operators are equipped with auxiliary hand operators and the change from power to hand operation or vice versa is instantaneous.

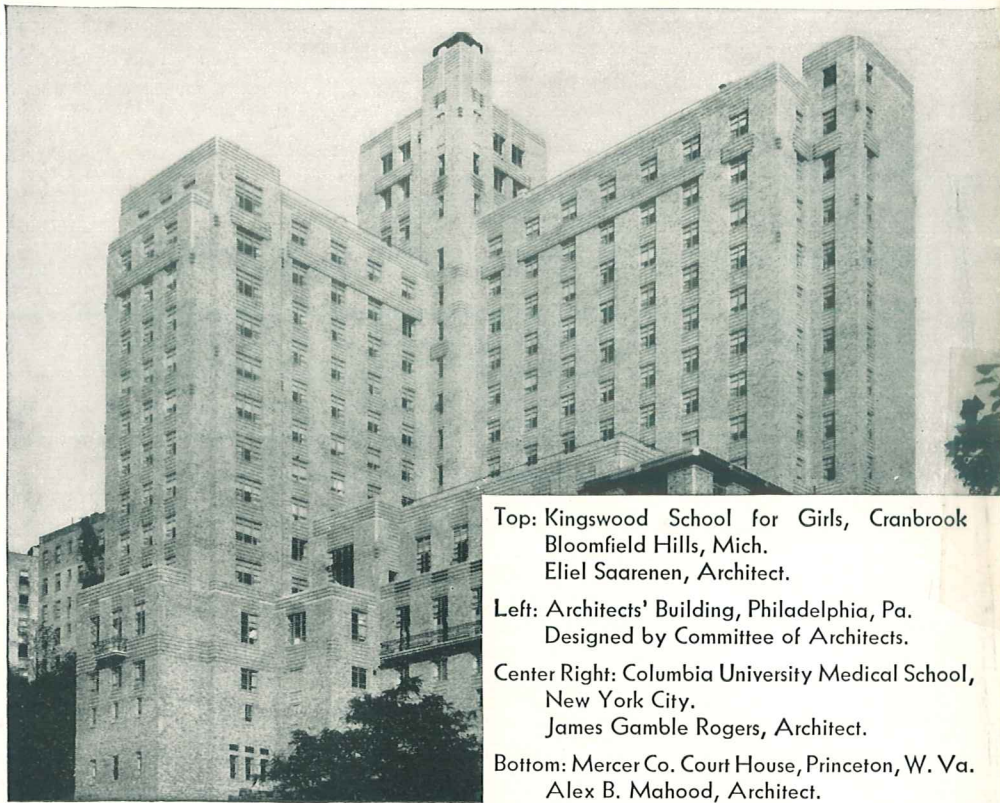
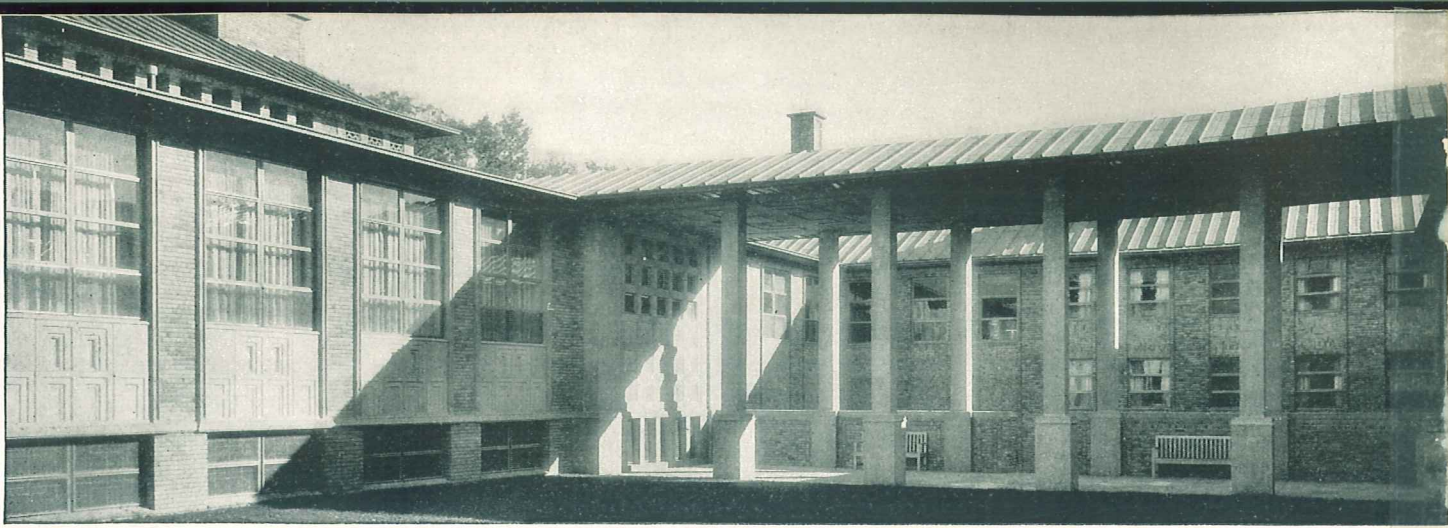
### FENESTRA ROLLING DOORS

These doors are of heavy construction, designed to roll on steel floor tracks, directed by steel guides at the head. They are supplied either in the "straight slide" or "round-the-corner" type. Each leaf contains steel window units in its upper panel and steel plate below. Economical but built for severe usage. Fittings are malleable castings. Bottom rollers mounted on roller bearings.



Round-the-corner Door





Top: Kingswood School for Girls, Cranbrook  
Bloomfield Hills, Mich.  
Eliel Saarinen, Architect.

Left: Architects' Building, Philadelphia, Pa.  
Designed by Committee of Architects.

Center Right: Columbia University Medical School,  
New York City.  
James Gamble Rogers, Architect.

Bottom: Mercer Co. Court House, Princeton, W. Va.  
Alex B. Mahood, Architect.

